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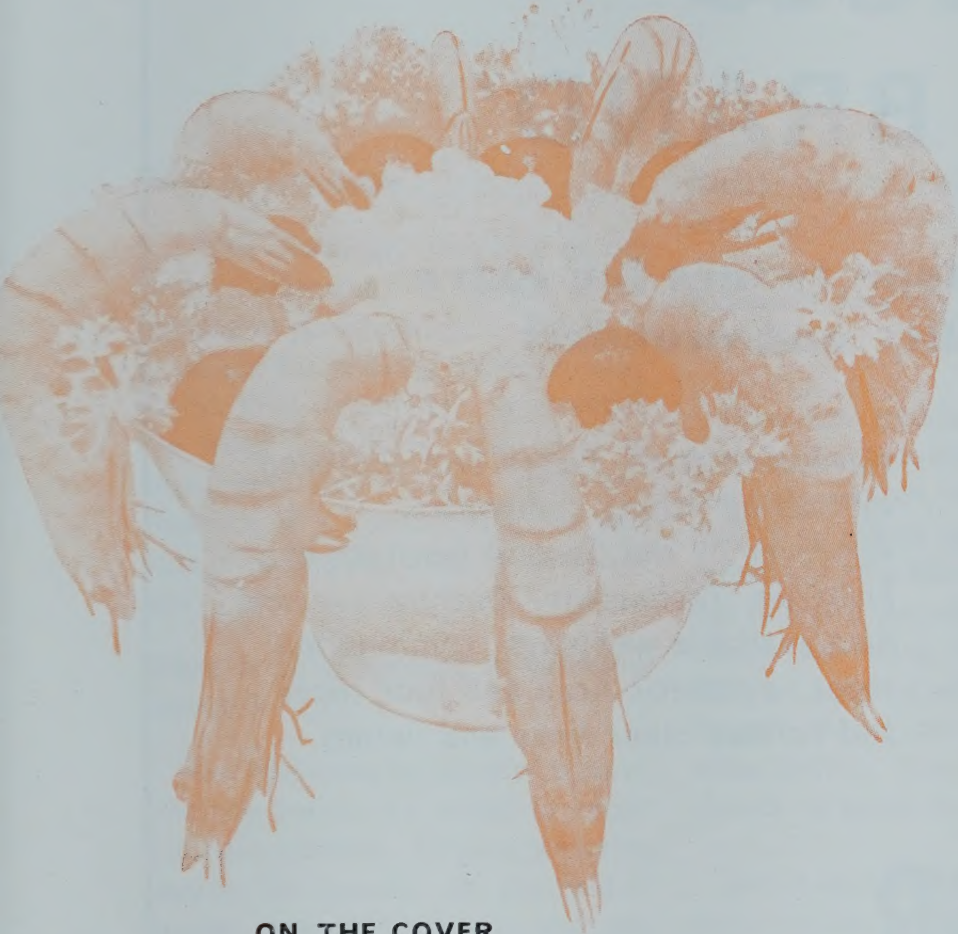
THE MARINE PRODUCTS EXPORT DEVELOPMENT AUTHORITY



INDIAN SEAFOODS



Vol. XIII No. 4 & Vol. XIV No. 1
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EXTENSION*

Dr. T. A. MAMMEN

Director, MPEDA

What is extension

The dictionary meaning of the word "extension" is the act of extending or prolongation". Presently it stands for transfer of technology to the field operatives. In practice the word "extension" has come to encompass very many attributes. Basically it is conditioning the attitude of people and make them accept new technological improvements.

There is no compulsion in extension approach

New ideas can be enforced by law, whereby people are asked to adopt a certain practice. All laws prescribe penalty for breach. In the field of quality improvement, the law can prescribe that unless the products or premises confirm to such and such standards, the products will not be cleared for marketing or will be seized and destroyed. Extension approach is different. Here there is no compulsion, no threat of punishment; the choice is entirely left to the people. The advantages of improvements suggested are demonstrated to him in a convincing manner that there is an appreciation on the need for improvement, followed by an urge and finally the adoption of the new concept. This is a voluntary

change of one's attitude towards a practice.

Extension does not stop with advice or training

Extension training is quite different from conventional training. Here the person receiving training may be an elderly person, having the experience of a lifetime and some of the defective procedures, which you intend correcting him, have been adopted by him as a compromise formula taking into account various other factors. You may ask that ice should be taken on fishing boats.

But if on landing the catch, the buyer makes the same payment, making no allowance, for the extra cost and effort put in bringing the catch in an iced condition, you cannot blame him for not taking ice. So also a suitable insulated box meeting his requirement may not be available. So you have to respect his views. Make the buyer more discerning, evolve suitable insulated boxes and give incentives to adopt the improved methods.

Extension is a two-way channel

Extension is a two-way channel to popularise and bring about an application of research findings and to

take back information on the areas where research finding require refinement and adaptation. A good extension worker always conducts field trial, gets himself convinced of the practical applicability before trying to extend, for it is not uncommon to find research advice not amenable to practical implementation.

Extension is convincing demonstration

Extension philosophy is "learning by doing" and "seeing is believing". It is no longer reeling out borrowed prescriptions; it is a matter of demonstrating completely, conclusively and convincingly.

Coming to demonstration, there are two types of extension demonstration.

Method demonstration

Here the improved methods are demonstrated in every detail. To make the difference between traditional and improved methods more apparent you may show them side by side, much the same way you use controls in scientific research. Naturally, it requires a lot of careful planning, meticulous following all details. The extension worker loses his credibility if his demonstration fails and so he should not leave anything to

*Talk given on 18-11-78 to Quality Supervisors under training.

chance. On the one hand, there is nothing like a good method demonstration in convincing people in the adoption of modern technology. It is, however, expensive and time consuming. Its coverage is very limited to the persons witnessing the demonstration.

Result demonstration

On the other hand has a wide coverage, less time consuming and less expensive. By result demonstration, the idea is to give a comparison between traditional and improved methods by publicising the results may be the result of a result demonstration. This may be in innumerable ways.

You can meet them separately and talk to them.

You may talk to them in groups, say co-operatives, village leaders, etc.

You may organise special campaign for this or organise an exhibition.

You may erect hoardings, which illustrate your point with suitable drawings and write-ups.

You may issue hand-outs or give newspaper article or advertisement.

You may conduct an audio-visual demonstrational show, movie films, film strips, slides etc.

Radio and more especially television programmes are efficient mass media for extension work.

Very often result demonstration serve to create a general awareness and pave the way for method demonstration. Similarly hand-out issued after a method demonstration serves as a reference paper. In actual extension work, a judicious application of both method and result demonstration is indicated.

Efficiency of extension work should be evaluated

A test of the efficiency of extension work is in the number of cases where the new method has been accepted. All extension programmes start with a bench mark survey of the situation prevailing before the work was taken up, followed by periodical estimation of the results. Here, I would only caution that statistics can be misleading.

Extension personnel should be carefully selected and trained; it is a dedicated work

Much of the success of extension depends on the choice of detailed programming for extension. It is in this context that I prefer separate personnel for the purpose.

Extension man should be acceptable to the community, by his belonging, his manners, his age, educational qualifications etc. He should know and be personally convinced about what he is trying to extend. He should have salemanship, to sell his ideas. He would require opportunities to get himself trained both in the subject of extension as well as on the principle and practice of extension. He should look at his work as a dedicated occupation, rather than an awkward assignment. Here what comes to my mind is the approach of a missionary, who by his life and action try to bring about conversion of people around him. In fact some of the best extension work in Agriculture and allied subjects has been done by religious bodies and voluntary organisations.

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DIVERSIFICATION OF SEAFOOD PRODUCTS

Dr. C. T. SAMUEL

Department of Industrial Fisheries
University of Cochin

Ever since India started producing seafood products, the main product was frozen shrimp. None of the efforts to produce and market seafood products other than frozen shrimp have succeeded in establishing steady markets abroad. Seafood products from India include 9 frozen products, 8 canned products, 2 categories of pickles, 7 dried fishery products, 7 items of ancillary products and Aquarium fish and plants. A proper study of these products, together with an investigation of the methods by which these products could find a regular market abroad are very essential for the diversification of the sea food products.

The production and export of frozen shrimp was started in 1953 with an export of 13,268 kg. worth Rs. 57,740. The value of the export of frozen shrimp reached Rs. 1,08,20,276 in 1962. The maximum export of frozen shrimp was in 1976 with 4,79,52,126 kg. which fetched a price of Rs. 1,60,64,99,300. Frozen shrimps are exported to more than thirty countries and the maximum exports are to U. S. A., Japan and Australia.

Frozen lobster tails entered the export market in 1962 with 39,763 kg. worth Rs. 2,26,364. This product has recorded a steady increase

both in quantity and value. In 1977, 5,95,555 kg. worth Rs. 3,88,04,101 was exported from India. Frozen lobster tails are exported to 17 countries and the most steady and the best market is U. S. A.

India entered the export market in 1962 for frozen fish with 23,305 kg. valued at Rs. 49,154. But there was a steady decline in the export. The export was only nominal during the years from 1964 to 1968. The export of frozen fish showed a steady increase from 1971 onwards. In 1977, 37,65,061 kg. worth Rs. 3,85,66,400 was exported. Nearly 25 countries import frozen fish from India among which U. S. A., Japan, Bahrein, Kuwait are the most important.

The effort made in 1968 and 1969 to find a market for frozen squilla tails in U. S. A. did not succeed.

Frozen squid is exported from India since 1975 to 10 countries. The best markets for frozen squids are France and Belgium. Japan and U. K. have not shown much interest in this product. The total export in 1977 was 6,06,596 kg. worth at Rs. 65,01,057.

Frozen cuttle fish is exported from India since 1973 to 9 countries. The maximum export is to Japan and

France. In 1977, 4,83,404 kg. of frozen cuttle fish worth Rs. 75,35,151 was exported from India. In addition to this, cuttle fish fillets worth Rs. 97,79,452 were also exported from India. Crab meat entered the export market in 1965 with a modest quantity of 864 kg. worth Rs. 4,498 and this product was not represented in the export of seafood from 1967 to 1975. Again in 1976 frozen crab meat was exported in small quantities in 1976 and in 1977, 22,549 kg. worth Rs. 6,51,414 was exported to Belgium, France and Netherland.

An export of frozen mussel meat in 1970 to West Germany was not followed by exports in the following years.

Frozen turtle meat which found an export market from 1969 onwards to eight countries recorded a decline and its export came to an end in 1976. The best market was West Germany.

Among the frozen sea food products, frozen shrimp continues to be the most important. Frozen crab meat shows promise of good demand. Frozen squid, cuttle fish and frozen cuttle fish fillets are promising items of export.

Among the canned products of sea foods, the most important is

canned shrimp. Canned shrimp was exported as early as in 1959. The total production of canned shrimp showed an unsteady trend until 1974 after which there was a decline. Canned shrimp is exported to more than 50 countries among which the most important are U. S. A, U. K., West Germany, Yugoslavia, Netherlands, Switzerland, Denmark, New-zealand, France, Belgium and Australia.

Canned Lobster tails found an export market only during the years from 1969 to 1973.

Canned sardine which had an initial export in 1976 of 40,992 kg. worth Rs. 5,34,410 showed a decline in 1977 to 10,579 kg. worth Rs. 1,41,062.

Canned crab meat was added as an export product in 1972. It showed a steady increase during the following years. The export has increased to 50,118 kgs. worth Rs. 31,43,914 in 1977. Canned crab meat is exported to Australia, France, Japan, Muscat, Sweden, Saudi Arabia, Switzerland, U. K. and U. S. A.

Canned clams and canned mussels were exported in rather negligible quantities to Muscat in 1975 and their export was discontinued.

The export of canned mackerel in 1975 to Muscat failed to capture a market. The export of canned Tuna was started in 1977 with 22,257 kg. worth Rs. 3,49,051 and this item is likely to find a market outside India. The export of other species of canned fish did not succeed so far.

Among the different canned products the most successful one are canned shrimp and canned crab meat. It is likely that canned tuna can be successfully marketed in foreign countries.

Fish pickles have established a steady market in Abudhabi, Australia, Bahrein, Kuwait, Kenya, U. S. A. and U. K. The export of this item has shown a gradual but unsteady increase since 1968.

Shrimp pickle is exported to nearly 20 countries. The most regular exports are to the United Kingdom.

The dried products are relatively cheaper than the frozen and canned products. Dried shrimp is a traditional export item. It is exported to more than 30 countries among which the most important are Australia, Canada, France, Hong-Kong, Japan, Netherlands, U. S. A., and U. K.

Dried fish is also a traditional item of export from India to the neighbouring countries. Dried fish finds a market in nearly forty countries among which Mauritius, Singapore, Sri Lanka and U. K. are the most important. The largest export was in 1970 with 72,69,419 kg. of dried fish worth Rs. 1,83,68,245 and the lowest export in recent years was in 1974 with 17,47,866 kg. worth Rs. 66,58,197.

Shark fins and fish maws are also traditional export items from India which are showing increasing trends during the last decade. These items are now exported to nearly 15 countries. The exports are mainly to Hong Kong, Singapore and U. K.

The total export of shark fins and fish maws in 1977 was 2,87,083 kg. worth Rs. 2,24,68,893. The export of shark tails to Singapore in 1970 did not succeed in finding a regular market.

Shrimp powder was exported to about 7 countries during the last decade, but the product was a failure in the export market. Similarly prawn bits were exported from 1968

to 1973 after which this item could not be exported.

There were exports of limited quantities of sea weeds in 1968 and subsequently from 1973 to 1976 to Japan.

Shark fish snouts, Fish wafers, Tortoise belly, Dried Squilla tails, Saw fish snouts, white squills and dried tortoise meat are some of the marine products which were exported only on a few occasions during the last decade.

Among the dried products, the most promising ones are dried fish, shark fins and fish maws.

The ancillary products of the sea-food industry such as the fish oil, sea shells, Fish meal, Tortoise and turtle shells, cuttle fish bones, sea ferns, sea fans and coral have limited importance as occasional items of exports.

The export of aquarium fish has not received its due importance. There are regular exports of limited numbers of aquarium fish to Belgium, Netherlands and the United Kingdom. The export of aquarium plants was not a successful venture.

This account gives the general trends in the export of all marine products from India. It is evident that among nearly 35 products that were produced in India, less than 5 products have established a regular market in foreign countries. The failure of each of the items that could not establish a market deserves a careful scrutiny. It is also necessary to find out whether the failure to secure an export market was due to the quality of the products or due to the inadequate sales promotion.

From the failure of nearly 30 sea-food products to establish a steady market in foreign countries, it is

evident that diversification of products needs effort to develop suitable products and considerable sales promotion work. The product has to be manufactured to suit the tastes and requirements of the foreign buyer. Efforts are needed to ascertain the scope for establishing a market in any country, before its production is started. The failure of a large

number of seafood products to find foreign markets shows the lack of a carefully planned effort to produce suitable products for selected countries.

If the sea food industries should maintain the rapid growth that they had in the past, diversification of the products is the only method. There

are not enough sea food products to give a choice for any industry. The most important responsibility of all Fisheries Institutions is to develop several seafood products which could find a foreign market. If this is achieved, the seafood industries could manufacture a wide variety of products to suit the specific requirements of each country.

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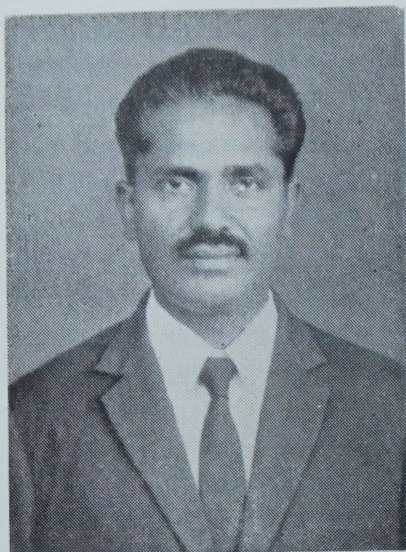
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CUTTLEFISH AND SQUIDS

—PRODUCTION AND MARKETING

V. RAMALINGAM

Dy. Director, MPEDA

1. World Production

There has been an overall increase in the world landings of cuttle fish and squids over the years. The combined landings rose from 8,38,000 tonnes in 1971 to an all time high of 9,80,588 tonnes in 1977. Of the total, roughly about 80% is accounted by squids while the rest 20% is shared by cuttle fish. Table I below presents the trend of landings of cuttle fish and squids in the last seven years.

Table I

World landings of cuttle fish & squid

Year	Cuttlefish	Squids	Total (tonnes)
1971	1,19,000	7,19,000	8,38,000
1972	1,16,000	7,99,000	9,15,000
1973	1,39,000	7,55,000	8,94,000
1974	1,74,085	6,88,636	8,62,721
1975	1,81,835	7,64,202	9,46,037
1976	1,99,646	7,70,268	9,69,914
1977	2,06,143	7,74,445	9,80,588

Source: F. A. O. Year Book of Fishery Statistics.

The Cuttle Fish catches have registered more or less a steady increase during the period from 1971 to 1977, whereas the squid production is almost stagnant.

2. Major Species

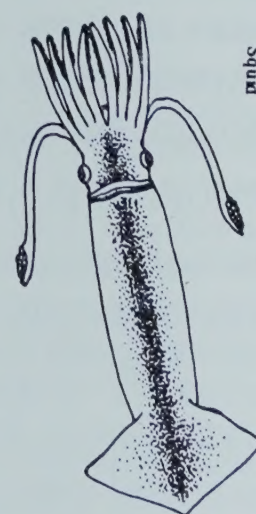
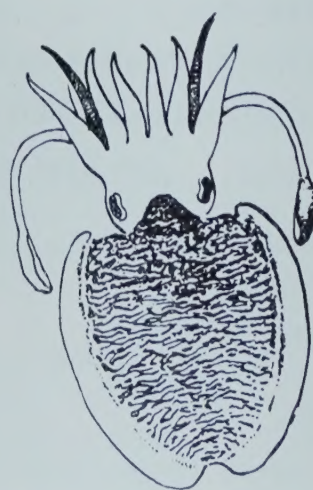
A. Cuttle Fish: In the F. A. O. Year Book of Fishery Statistics, the Cuttle Fish is classified under two broad categories.

(1) Common Cuttle Fish *Sepia officinalis*

(2) Cuttle Fish (others) *Sepia spp.*, *Sepiolo spp.*

The world landings of each category are as given below:-

	(Figures in Tonnes)			
	1974	1975	1976	1977
Common Cuttle-fish (<i>Sepia officinalis</i>)	13,588	12,163	10,969	10,699
Cuttlefish (Others) (<i>Sepia spp.</i> , <i>Sepiolo spp.</i>)	1,60,497	1,69,672	1,88,677	1,95,444
Total	1,74,085	1,81,835	1,99,646	2,06,143



It is evident that common cuttle fish account for little over 5% of the total. Their landings are steadily on the decline. On contrast, Cuttle fish (others) which are increasingly landed year after year take a share of about 95% of the total.

B. Squid

In the same F.A. O. publication, the Squid is grouped under eight broad heads as shown below:-

- | | | |
|-------------------------------|-----|--|
| 1. Long finned squid | ... | (<i>Loligo pealei</i>) |
| 2. Common Squid | ... | (<i>Loligo spp</i>) |
| 3. Short finned squid | .. | (<i>Illex illecebrosus</i>) |
| 4. Mediterranean flying squid | ... | (<i>Illex coindetii</i>) |
| 5. European flying squid | ... | (<i>Todarodes sagittatus</i>) |
| 6. Japanese flying squid | ... | (<i>Todarodes pacificus</i>) |
| 7. Tasmanian flying squid | ... | (<i>Nototodarus solani</i>) |
| 8. Squids (others) | ... | (<i>Loleginidae, Ommastrephidae</i>) |

As could be seen from Table II above, Japanese Flying Squid (*Todarodes pacificus*) is the single largest species harvested in the world. This is followed by short-finned squid, common squid and Tasmanian flying squid in that order. Each of the other species account for only a small proportion in the total.

3. Major Landing Centres

A. Cuttle Fish

Japan is the leading cuttle fish producing country in the world closely followed by Philipines, Thailand and Spain in that order. These

four countries jointly account for nearly 50 per cent of the world landings. The other important cuttle fish landing countries include Republic of Korea, Malaysia, Vietnam, Italy and France.

More than 97% of the world landings of Common Cuttle Fish (*Sepia*

officinalis) is in a single country, namely Italy.

As could be seen from Table III in the major cuttle fish producing countries, the landings are more or less stagnant or showing a downward trend. In other words, the catches there have already reached the peak. Countries like Malaysia, India etc., where the exploitation is still at low levels have greater scope to step up production in the coming years.

B. Squids

Japan is the single largest squid producing country in the world accounting for about 60% of the world landings. The other important producers are U. S. S. R., Thailand, Korean Republic, Spain, Italy. Indonesia and France in that order. Table IV presents the trend of landings in each of these countries.

The order of importance of major squids species caught in the countries referred to is as follows:

Table II					
World Production of Squids					
(Figures in tonnes)					
Varieties	1974	1975	1976	1977	
1. Long finned squid (<i>Loligo pealei</i>)	26,216	24,629	20,103	15,608	
2. Common Squids (<i>Loligo spp</i>)	1,08,859	92,648	80,352	76,998	
3. Short finned squid (<i>Illex illecebrosus</i>)	25,653	33,370	70,762	1,09,686	
4. Mediterranean Flying Squid (<i>Illex coindetii</i>)	393	219	305	181	
5. European Flying Squid (<i>Todarodes sagittatus</i>)	2,679	4,399	4,683	4,235	
6. Japanese Flying Squid (<i>Todarodes pacificus</i>)	3,41,544	3,98,660	3,25,740	2,25,932	
7. Tasmanian Flying Squid (<i>Nototodarus solani</i>)	24,579	19,018	19,692	27,149	
8. Squids (nei) (<i>Loleginidae</i> , <i>Ommastrephidae</i>)	1,58,713	1,91,259	2,48,631	3,14,656	
Total	6,88,636	7,64,202	7,70,268	7,74,445	

Japan	Japanese flying squid (2,07,813 tonnes in 1977) Tasmanian flying squid (26,593) Common squid (7,833) and Short finned squid (7,771)
U.S.S.R.	Short finned squid (26,956)
Thailand	Common squid (entire catch)
Korean Republic	Japanese flying squid (1819)
Spain	Short finned squid (11,272) Common squid (5,566), Long finned squid (5,236)
Italy	Common squid (4,497), Short finned squid (4,413) Long finned squid (2,237)

Indonesia Common squid (entire catch)

France Common squid (4,250)

The trend of species-wise landings in the important squid landing countries is given as Annexure.

4. Export Markets

The major markets for cuttle fish and squids are in southern Europe (western) and the Far East (eastern). In Southern Europe, Spain, Italy, France and Greece are the main importing countries. Japan and

Philippines are the major importers in the Far East. These countries themselves are important producers. In the past, these nations usually were able to satisfy their demand with domestic production. In recent periods, the situation changed; their domestic demand has risen

Table III

Cuttlefish Landings in Major Producing Countries

(Figures in tonnes)

Country	1974	1975	1976	1977	Species
1. Japan	34,219	26,429	30,700	28,536	<i>Sepia spp.</i> , <i>Sepiola spp.</i>
2. Phillipines	24,188	29,567	24,254	27,543	<i>Sepia spp.</i> , <i>Sepiola spp.</i>
3. Thailand	21,000	24,969	23,753	24,908	<i>Sepia spp.</i> , <i>Sepiola spp.</i>
4. Spain	26,526	19,810	17,148	21,708	<i>Sepia spp.</i> , <i>Sepiola spp.</i>
5. Korean Republic	6,504	10,932	16,429	14,780	<i>Sepia spp.</i> , <i>Sepiola spp.</i>
6. Malaysia	6,664	7,916	13,177	13,721	<i>Sepia spp.</i> , <i>Sepiola spp.</i>
7. Vietnam	12,900	12,900	12,900	12,900	<i>Sepia spp.</i> , <i>Sepiola spp.</i>
8. Italy	13,212	11,820	10,666	10,449	<i>Sepia officinalis</i>
9. France	4,241	6,889	4,098	7,049	<i>Sepia spp.</i> , <i>Sepiola spp.</i>
10. Others	24,631	30,603	46,521	44,549	
Total	1,74,085	1,81,835	1,94,646	2,06,143	

Table IV

Country-wise Squid Landings in Major Producing Countries

(Figures in tonnes)

Country	1974	1975	1976	1977
1. Japan	4,39,298 (63.79 %)	5,07,854 (66.46 %)	4,66,106 (60.51 %)	4,61,907 (59.64 %)
2. U. S. S. R.	26,135 (3.80 %)	39,593 (5.18 %)	41,905 (5.44 %)	74,445 (9.61 %)
3. Thailand	42,000 (6.10 %)	37,781 (4.94 %)	36,163 (4.69 %)	38,472 (4.97 %)
4. Korean Republic	51,822 (7.53 %)	58,534 (7.66 %)	73,002 (9.48 %)	38,093 (4.92 %)
5. Spain	48,390 (7.03 %)	35,519 (4.65 %)	29,440 (3.82 %)	22,074 (2.85 %)
6. Italy	11,773 (1.71 %)	11,719 (1.53 %)	13,227 (1.72 %)	15,194 (1.96 %)
7. Indonesia	6,728 (0.98 %)	9,835 (1.29 %)	7,557 (0.98 %)	8,063 (1.04 %)
8. France	3,590 (0.52 %)	4,382 (0.57 %)	5,286 (0.69 %)	5,025 (0.65 %)
9. Others	58,900 (8.54 %)	58,985 (7.72 %)	97,582 (12.67 %)	1,11,172 (14.36 %)
Total	6,88,636 (100.00 %)	7,64,202 (100.00 %)	7,70,268 (100.00 %)	7,74,445 (100.00 %)

much faster than their domestic landings. As a result, the widening gap between the supply of and demand for cuttle fish and squid is filled up increasingly by imports.

(i) Markets in West Europe

The markets in Southern Europe import mostly squids and that too in frozen, whole form. The preferred genus is *Loligo*, and *Illex*. In the case of Spain, particularly, there is a substantial market for processed products including tubed and battered and breaded items. Greece is the only country where canned squid is moving fast. Italy prefers the squid that has been frozen at sea.

Spain imports annually over 33,600 tonnes of squids from various sources. Her main suppliers are U. S. S. R. (7,500 tonnes), Japan (9,000 tonnes) and Republic of Korea (7,000 tonnes).

Annual imports of squids into Italy exceed 7,000 tonnes. Japan is the principal exporting country to this market, about 3,000 tonnes annually. Thailand and South Africa are the other major suppliers.

Imports of Squid into France amount to over 2,000 tonnes annually. The imports originate mainly from Japan, Thailand, Malaysia and U.S.A. Significant quantities of squids are also being supplied now by India to this market.

Greece meets her requirements largely from Spain. Her annual imports are of the order of 1400 tonnes.

(ii) Far East Markets

It is estimated that roughly about 80 per cent of the world production of cuttle fish and squid is consumed in the Far East. The markets in this region are also considerably diversified. As already referred to, Japan and Philippines are the important markets there.

Japan is by far the largest importer as well as consumer of squid and cuttle fish in the world. The per-capita consumption of cuttlefish and squid in Japan was as high as 5.48 kg. during 1975. The present consumption level is reported to be much higher than that of 1975.

Sepia is the most preferred species in Japan. On account of this, import of species of other than Sepia was banned till the end of 1970. Since the availability of Sepia was far inadequate to meet the rising demand, Japan started importing squid and cuttle fish of species other than Sepia with effect from 1971 particularly from South East Asian countries.

As far as Japan is concerned, import figures separately for Cuttle

fish or squid are not available. These two items are grouped together under the head cuttle fish for the purpose of statistics.

Bulk of the imports of cuttle fish and squids into Japan is in fresh, chilled or frozen form. Significant quantities are imported in 'Prepared' or 'Processed' form. Some quantities are also imported in salted or dried form. Table V below presents the quantum of her imports in the last six years.

About forty countries supply cuttle fish and squids to Japan. However, the major suppliers of fresh, chilled or frozen cuttle fish and

squid to Japan are Republic of Korea, Canada, Spain, Thailand, Argentina, Taiwan, Morocco etc.

Supplies from all the major sources have increased during 1978. However, the increase was quite impressive in the case of supplies from Canada, Argentina and Morocco.

Imports from Republic of Korea into Japan consisted largely Sepia. However, in recent years, she is also active in supplying to Japan other squid and cuttle fish. The consignments from this source are consumed mostly in the form of 'Sashimi' or raw fish. Imports from Thailand which consist largely of other squids

Table V

Imports of Cuttlefish and Squid into Japan

Year	Fresh, chilled or Frozen	Prepared or Processed	(Product wt. in tonnes)	
			Dried or Salted	Total
1973	28,980	7,105	783	36,868
1974	44,762	6,155	610	51,527
1975	58,580	7,025	852	66,457
1976	68,533	5,835	714	75,082
1977	74,732	6,000*	1,347	82,079
1978				
(Jan.- Nov.)	98,912	6,000*	1,325	1,06,237

Source: Japan Marine Products Importers Association.

* Estimated.

Table VI

The trend of import from these countries are as shown in Table VI below:

Source of Supply	1975	1976	(Figures in tonnes)	
			1977	1978 (Jan.- Nov.)
1. Republic of Korea	1,9758	21,760	19,935	23,530
2. Canada	160	3,116	7,423	18,212
3. Spain	8,338	7,691	7,780	11,703
4. Thailand	9,262	7,524	8,250	8,926
5. Argentina	625	753	27	8,921
6. Taiwan	2,078	2,034	1,579	3,422
7. Morocco	1,277	768	800	2,942
8. Others	17,082	24,887	28,938	21,256
Total	58,580	68,533	74,732	98,912

and cuttle fish arrive dressed (without the head and tentacled part, viscera and the outer skin). Sources in the European countries normally supply the Sepia variety. The South-east Asian Cuttle fish and squid are reported to be unsuitable for 'Sashimi', because they are mostly small in size. They are, therefore, largely used for processing in Japan.

In addition to fresh, chilled or frozen, Japan imports annually about 6000/7000 tonnes of squid and cuttle fish preparations which include

- (a) "Saki ika" (seasoned cuttle fish)
- (b) "Noshi ika" (rolled cuttle fish), and
- (c) "Maruni" (round boiled squid and cuttle fish)

These preparations undergo further processing in Japan before they reach the ultimate consumer. Besides Republic of Korea, other countries like Thailand, Philippines, Singapore, Malaysia etc., also supply these preparations.

Salted or dried squid and cuttle fish which are generally known as "Suruma", are imported into Japan from Republic of Korea, Thailand, Singapore, Philippines etc. These imported items are never sold to the consumers in this form. They are instead used as raw materials in delicacy foods.

The demand for canned squid or cuttle fish has declined sharply in Japan.

Quota restrictions in Japan

There is a quota fixed half yearly for the import of frozen cuttle fish and squid into Japan, in order to protect Japan's littoral fishing industry. Till the end of 1970, the import quota was restricted to *Sepia officinalis linne*, while the import of other squid and cuttle fish species was banned. From 1971 onwards, it

was relaxed; squid and cuttle fish of species other than Sepia were also allowed to be imported and their imports were also restricted by quota. The species other than Sepia are mainly being imported from South east Asian countries.

Similar quota system has also been followed in the case of dried items. The import quota system for frozen as well as dried squids and cuttle fish is as follows:-

Import Quota	Applies to	Allotments
Frozen		
Quota for Korea	Japanese trading firms	In value twice annually
Quota for other countries	Japanese trading firms, processors, and joint ventures.	In quantity twice annually
Dried		
Quota for Korea	Trading firms	In quantity once annually
Quota for other countries	Trading firms and processors	In quantity once annually

In the case of squid and cuttle fish which are canned, smoked, fermented, kneaded or seasoned in any way can be imported in unlimited quantities without any quota restrictions.

As for Philippines, her imports include mostly canned squid and cuttle fish, about 1100 tonnes per annum.

5. Market Prospects

West Europe and the Far East will continue to be the principal marketing centres for cuttle fish and squid. The major factors which will have a definite bearing on future demand for these items include-

- (a) economic conditions in the consuming country and currency exchange rates;
- (b) effect of the extension of economic fishing zone to 200 miles;
- (c) levels of domestic production in the consuming countries;
- (d) fuel cost for fishing operations;

and

- (e) licence requirements and payments of fees within the contiguous fisheries zones.

Based on the above, there is not much scope for the European Market to expand in the coming years. Fresh and frozen squid are already regarded as semi luxury items in many of the European countries including Spain, Italy and France.

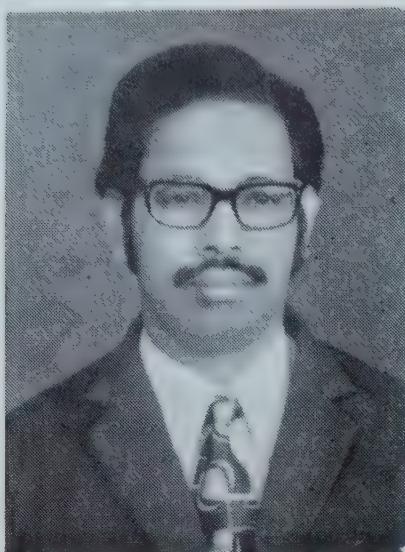
In the other West European countries, the present level of low consumption is expected to continue for many years to come.

On the whole, the West European market is mainly for squid; Spain, France and Italy will be the main markets there.

The potential for expansion of the market is greater in the Far East. The demand for squid and cuttle fish in Japan will enjoy an accelerated growth in the coming years. Much of the increase in demand will mainly be for cuttle fish. As compared to Cuttle fish, the demand for the low priced squid has relatively declined as per capita income has risen. Falling domestic production on account of extended jurisdiction for fishing and decreased stocks in their house waters, will give a definite fillip to the imports of cuttle fish. Hong-Kong, Philippines and Thailand will also become important importing countries in the coming years when the demand for cuttle fish and squid is expected to pick up substantially.

SPECIES-WISE SQUID LANDINGS IN SELECTED COUNTRIES

COUNTRIES		(Figures in Tonnes)			
		1974	1975	1976	1977
(A) Japan					
1.	Common Squid (Loligo pealei)	13,375	11,200	5,169	7,833
2.	Short finned squid (Illex illecebrosus)	3,556	3,356	6,161	7,771
3.	Japanese flying Squid (Todarodes pacificus)	3,10,190	3,58,403	2,80,513	2,07,813
4.	Tasmanian Flying Squid	24,479	18,947	19,598	26,593
5.	(Nototodarus solani)				
	Squids (nei)	87,698	1,15,948	1,54,665	2,11,897
	(Loliginidae, Ommastrephidae)				
	Total	4,39,298	5,07,854	4,66,106	4,61,907
(B) THAILAND					
	Common Squids (Loligo spp)	4,200	37,781	36,163	38,472
(C) KOREA REPUBLIC					
1.	Japanese Flying Squid (Todarodes pacificus)	31,354	40,257	45,227	18,119
2.	Squids (nei) (Loliginidae, Ommastrephidae)	20,468	18,277	27,775	19,974
	Total	51,822	58,534	73,002	38,093
(D) SPAIN					
1.	Long Finned Squid (Loligo pealei)	9,375	7,698	9,137	5,236
2.	Common Squids (Loligo spp)	31,881	22,279	12,010	5,566
3.	Short Finned Squid (Illex illecebrosus)	7,034	3,836	6,511	11,272
4.	Mediterranean Flying Squid	100	—	124	—
5.	(Illex coindetii)				
	European Flying Squid (Todarodes sagittatus)	—	1,706	1,658	—
	Total	48,390	35,519	29,440	22,074
(E) ITALY					
1.	Long Finned Squid (Loligo pealei)	3,280	3,390	3,304	2,237
2.	Common Squids (Loligo spp)	4,834	4,792	4,426	4,497
3.	Short Finned Squid (Illex illecebrosus)	980	844	2,472	4,413
4.	European Flying Squid (Todarodes sagittatus)	2,679	2,693	3,025	4,047
	Total	11,773	11,719	13,227	15,194
(F) U. S. S. R.					
1.	Long Finned Squid (Loligo pealei)	—	—	832	7
2.	Short Finned Squid (Illex illecebrosus)	8,560	13,634	23,712	26,956
3.	Squids (nei) (Loliginidae, Ommastrephidae)	17,575	25,959	17,361	47,482
	Total	26,135	39,593	41,905	74,445
(G) FRANCE					
1.	Common Squids (Loligo spp)	3,590	4,382	4,822	4,250
2.	Short Finned Squids (Illex illecebrosus)	—	—	464	775
	Total	3,590	4,382	5,284	5,025
(H) INDONESIA					
1.	Common Squids (Loligo spp)	6,728	9,835	7,557	8,063



EXCLUSIVE ECONOMIC ZONE AND INDIA'S FISHING FLEET

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At the FAO sponsored Technical Conference on Fishery Management and Development held in 1973, the fishery scientists and administrators warned that the worldwide extension of fishing limit out to 320 Km could result in a significant temporary decline in the overall supply of fish protein. The high seas are now 320 Km off, about 90% of the known and utilised aquatic species fall under the administrative control of the coastal State. The share of catch by the "local" and distant water fishing vessels is as given below.

According to a recent estimate by the FAO, the share of catch by the DW fishing vessel is put at 16.4

million tons. Of this, about 67% of the catches were obtained from areas which fall within the EEZ managed by individual countries. In this context a scrutiny of data on catches of marine fish (for the year 1971) from Indian Ocean by non-Indian Ocean countries would be of interest. This is presented below:

World and Indian Ocean Catches of Marine Fishes

	(in million metric tons)
World Catch	59.9
Indian ocean catch	3.1
Indian ocean catch, non-Indian ocean countries	0.242

Indian ocean-catch, non-Indian ocean countries, as % of Indian ocean total 7.8%
(Source: FAO Fishery Statistics)

This indicates that Indian Ocean catches by non-Indian Ocean countries amount to about 8% of the total.

The vessels engaged in the exploitation of fishery resources can be grouped under:

- (1) those employed in distant water fisheries: Operation of distant water vessel is carried out by Japan, USSR etc. It has also been operated by Republic of Korea, a developing country. DW fisheries was undertaken by Korea for the first time in 1957 when a tuna long liner made a trial cruise to the waters near Nicobar Island in the Indian Ocean.
- (2) those operating off-shore or in middle water fisheries: Of the Indian Ocean countries, India, Pakistan and Sri Lanka had a large fleet of vessels belonging to this category.
- (3) those engaged in traditional fishing:

Table 1. Catches by Local and Distant Water Fleets

		Year			
Fishing areas		1967	1968	1969	1970
Indian Ocean, Western	Local	1,232 (91)	1,308 (91)	1,350 (30)	1,545 (91)
	DW	128 (9)	132 (9)	150 (10)	145 (9)
Indian Ocean, Eastern	Local	868 (93)	959 (94)	1,076 (96)	1,051 (96)
	DW	62 (7)	61 (6)	44 (4)	39 (4)
World Total	Local	47,580 (88)	50,880 (89)	49,170 (89)	54,590 (88)
	DW	6,330 (12)	6,090 (11)	6,320 (11)	7,140 (12)

(Catches in thousand tons and, in parentheses, percentage of national total taken by local and distant water (DW) fleets. Source: Guland J.A., Technical Conference on Fishery Management and Development, of the FAO, 1973).

This constitutes the traditional backbone of the fishing industry in many countries including the developed nations like Japan.

The economic development of the countries in the Indian Ocean region shows wide variation which is more or less reflected on the structure of the fisheries, which in turn has influenced the contributions of the industry to the national economy. Lack of entrepreneurship as well as low income of the fishermen were factors responsible for the low level of growth of the traditional sector of fisheries.

A survey of the types of boats of India shows diversity as regards to design, size and operational features in conformity to the conditions prevailing in the area. So also improvements of existing fishing crafts varied considerably which depended upon the economic and commercial justification. Fishermen were, naturally reluctant to effect the modifications suggested by the Naval Architect unless they are assured of a better return for their investment.

The vast coastline of India is characterised by different climatic condition and coast formation:

Gujarat,	—	Sea moderate
Maharashtra		
Karnataka,	—	Sea moderate
Kerala		
Tamil Nadu,		
Southern part of Andhra	—	Sea moderate to rough
Northern part of Andhra, Southern part of Orissa	—	Sea rough
Orissa (North of Paradip), West Bengal	—	Sea moderate to rough, shallow

The stages of development of fishing boats in India from a Naval

Architect's view point can be represented under:

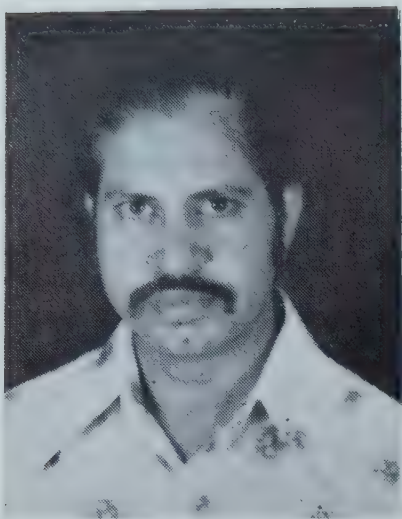
Base	Country craft
Ist Stage —	Mechanisation of country craft
IInd Stage —	Introduction of simple, small mechanised crafts
IIIrd Stage	Introduction of bigger and more specialised boats.
IVth Stage	Broadening into fishing fleet.

About a million of fishermen who are engaged in traditional methods of fishing employ non-powered coastal fishing crafts whose number is around 0.1 million and follow traditional methods of fishing such as hand-lining, gill-netting, beach-seining etc. These are plank-built or dug out canoes operate close to the shore following the traditional pattern of production, viz, short trips, small catches and close range operation. A successful formulation of a project with an economic purpose will help change the status of fishermen from employed fishermen to owner fishermen'.

The number of mechanised boats operating in India has recorded a steep rise from 863 in 1955 to 10,698 in 1971 (George P. C., Technical Conference on Fishery Management and Development, of the FAO, 1973). The present estimate for the year 1978 is around 15,000. The number of non-powered crafts remained more or less constant at 0.1 million. The emphasis on increased exploitation of our marine fishery resources is evident from our eagerness to introduce larger, faster and sophisticated mechanised boats. The development had been rapid and number of improved designs

meeting the requirements in respect of operation of trawlers, fish carriers purse-seiner, exploratory fishing vessels, pole and line fishing vessel constructed out of wood or steel are in use. Action is underway for the development of design of distant water fisheries vessels. About hundred large vessels, some of foreign origin are also in service. Concurrent action on construction of large fishing vessels has resulted in the expansion of facilities at the trawler building yards and these yards contributed to the fishing industry in a significant way. The fishing industry has absorbed the latest innovations in technology as regards newer construction materials like fibre glass reinforced plastics, ferrocement; advances in propulsion; advances in protection of steel crafts against the ravages of marine corrosion and of wooden boats against biodeterioration and overall cost minimising practices.

Government had allowed from time to time import of limited number of vessels of different design and origin which would apart from strengthen our production base would also provide a good range of prototype of fishing vessels. In the context of the declaration of the exclusive economic zone, the Government had permitted import of a large number of deep sea fishing vessels and offered substantial loans from the Shipping Development Fund which provided a further fillip to the development of distant water fisheries. For the overall development of fisheries, a complex infrastructure consisting of harbours, berthing and servicing facilities, provision of frozen and cold storages, processing, distribution and marketing channels is essential. Distant water fishing is in the beginning in India and it is certain that it would gain momentum shortly.



TRADE IN CULTIVABLE PRAWN SEED

DR. P. U. VERGHESE

Dy. Director (Prawn Farming), MPEDA

The export of prawns from India is on the increase year after year. An all time high level has been reported during 1978 with the export of 51,223 tonnes of frozen shrimp valued at Rs. 176.06 crores out of the total export earnings of Rs. 212.16 crores through seafood. The catch per unit of effort is gradually dwindling as more trawlers and fishing crafts are engaged in capturing prawns from the inshore waters. Already the exporters are feeling the insufficiency of the captured prawns to sustain the industry. Farming the prawns as an alternate source to increase the production is catching up the world over. India is also not lagging behind in this direction. In the production of shrimps and prawns through aquaculture India is on the top with 4000 tonnes (Table I) as per estimates available for 1975.

The production has increased from the 1975 level and as the export of prawns from Calcutta for 1977 indicates West Bengal alone produces around 3000 tonnes of prawns per year. Most of the prawns exported from Calcutta come from the tradition at "Bheries". The continued high demand for Indian prawns in the developed countries has stimulated interest in their production through aquaculture. The favourite of the prawn farmers is the Jumbo

tiger prawn, *Penaeus monodon* Fabricius (Bagda in W. Bengal and Kara chemmeen in Kerala). This species grows very fast and takes only 3 months to attain marketable size of 28-30 g. from stocking size of 0.5 g. under favourable culture conditions. The maximum size recorded is 33 cm. At the Brackish water Experimental Fish Farm, Kakdwip of the Central Inland Fisheries Research Institute, the scientists have developed management techniques to raise a production of tiger prawn at the rate of 1000-1200 Kg/ha/yr through 3 crops. W. Bengal is blessed with abundant natural source of the seed of the prawn in the form of postlarvae in the vast tidal estuaries. Post larvae of tiger prawn migrate to the upper reaches of the elaborate net work of estuaries, especially in the Sunderbans (Fig. 1).

The Postlarvae of tiger prawn of size 10-15 mm are noticed throughout the year in this area with peak of abundance in the months of April-May. A type of funnel shaped filter net called fry collection shooting net is used in collecting the prawn and fish seed from the tidal creeks. A net may catch as much as 1 Kg. of prawn and fish seed in one hour operation. Shooting net operation is more effective during spring tides associated with new moon and full

moon when the velocity of tidal flow will be ideal for effective filtering of more water through the net.

The collection obtained from the shooting nets is a complex mixture of larvae and juveniles of prawns, fishes, crabs and other crustaceans. Segregation of the larvae and juveniles of the required species in living condition without impairing the further rearing possibilities is a laborious task, which requires lot of expertise and patience. The lure of money is the stimulant in persuading the local fishermen to undertake this job.

The enterprising fishermen of Sunderbans now get into the tidal creek with shooting nets and similar contraptions to reap a harvest of the tiger prawn babies. Three persons engaged in the operation of net and segregation can collect upto 20,000 postlarvae per day during the peak season. The catch of tiger prawn postlarvae per man-hour during different months of the year at one collection centre of Kakdwip presented in Table II will give a fair idea of the pattern of availability of the prawn seed. The seed is in heavy demand both in the traditional bhasa bada fisheries and organised brackish water fish farms. When the seed is available in small quantities during



Fig. 1
Map of Hooghly - Matlah estuarine system, West Bengal, showing prawn seed collection centres

the lean months the price of the fry soars up to Rs. 30/- per thousand at the collection centres. When they are available in plenty, as during

the months of April-May-June, the price comes down to Rs. 5/- to 8/- per thousand.

The postlarvae are transported in

open containers for short distances, from the collection centres to the farm sites. The long distance transport is gradually developing as the seed market is growing beyond the boundaries of the State. The traditional method of fish seed transport through Oxygen packing in polythene bags has been found satisfactory in the case of prawns fry also.

Experimental level long distance transportation has been recently initiated from W. Bengal to Kerala. The Government of Kerala, the Kerala Agriculture University and the Marine Products Export Development Authority of India are the agencies interested in conducting prawn farming in Kerala with the tiger prawn seed of W. Bengal.

The Trade is still in its infancy and the volume of trade and the persons actively engaged in it are not known definitely. A comprehensive survey of the whole operation is required to assess its impact. The present centres of the trade are located around Kakdwip, Canning and Basirhat areas of the Sunderbans (Fig. 1). It is gradually expanding as more and more prospective collection centres are detected.

The demand of prawn seed has opened up employment opportunities for the poorer sections of the people living in this area. It is a satisfying sight to see small boys and girls toil in the muddy water to collect the priced prawn seed all through the day. They get grown up juveniles of the tiger prawn from the inter tidal pits and pools. One hundred number of such prawns can fetch not less than a rupee. An experienced boy or girl collects about Rs. 5/- worth of tiger prawn seed in a day's sojourn through the creaks.

TABLE I

Estimated production of shrimp and prawns through aquaculture in 1975*

Country	Production of shrimps & prawns in Tons
India	4000
Indonesia	4000
Thailand	3300
Japan	2779
Ecuador	900
Taiwan	549
Singapore	105
Korea, Republic of	30
Total	15663

* From Dr. T. V. R. Pillai's keynote paper of the FAO Aquaculture Conference held at Kyoto, Japan, May, 26 to June 2, 1976.

TABLE II

Collection of *Penaeus monodon* post-larvae from Muriganga estuary at Kakdwip during 1976-77.

Month	Catch/manhour*	
	1976	1977
January	26.5	1.2
February	104.5	16.9
March	114.5	75.3

April	762.2	1406.8
May	874.6	1344.1
June	468.0	906.0
July	775.5	564.4
August	294.0	216.8
September	119.5	134.0
October	116.0	91.2
November	34.7	54.1
December	190.0	28.9

* One fry collection shooting net is operated by 3 persons for 3 hour per tide.

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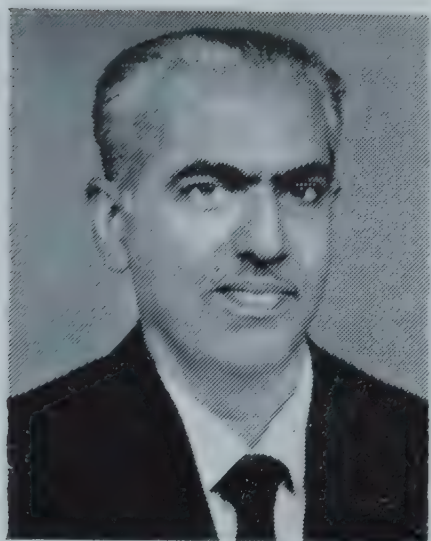


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TRENDS IN MARINE PRAWN PRODUCTION IN INDIA

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INTRODUCTION

A study of the statistics of the world fisheries reveals that from second position among the prawn producing countries of world (Mohamed, 1973), India has reached the top rank in prawn production in 1973 and ever since this is being kept up (FAO, 1975; MPEDA, 1976). The fishery is constituted by the penaeid prawns belonging to the family Penaeidae and the non-penaeid prawns belonging to the families Palaemonidae, Hippolytidae, Sergestidae and Pandalidae, the major contribution coming from the west coast of India. To meet the insatiable demand for prawns and prawn products, both from the export industry as well as for internal consumption, all possible measures are being sought for maximum exploitation of the fishery. An evaluation of the fishery is attempted in the present contribution by examining the trends in the prawn landings of the country over the past fifteen years. The data available in the publications of MPEDA (1976) and CMFRI (1977) have been utilised for the study.

Total prawn landings

The total prawn landings of the country from 1962 through 1977 are given in figure 1. It is seen that from 1962 through 1968, the catches remain almost at a steady level below 100 thousand tonnes. From 1969 onwards to 1973, there is a steep increase, the catches almost doubling by this time as mentioned by Mohamed and Rao (1973) also. After 1973, there is yearly fluctuation, reaching the maximum of 220 thousand tonnes in 1975 and again coming down to less than 200 thousand tonnes in 1976 and 1977. The trend in triennial average catch shows an overall increase of above 125% in the landings from 1962-64 to 1974-76.

Prawn landings from the west and east coasts of India

It is a well known fact that the west coast of India accounts for more than 85% of the total marine prawn landings. As a result, the trend in the catches of this coast determines the trend in the total landings. This is clearly seen in the trend of catches of west coast (Fig.2), remaining at a steady level upto 1968, thereafter, showing steep increase upto 1973 and then fluctu-

ating during the subsequent years. The percentage of increase in the triennial average over the years is the same as that of the total landings.

The picture of the trend in catches along the east coast is quite different. Forming only less than 15% of the total landings, the catches remained below 12 thousand tonnes upto 1966 (Fig. 3). In 1967, a sharp increase to above 24 thousand tonnes is noticed and this is kept up in the subsequent year also. Then, there is a steep decline through 1972 to about the landing figures of 1966. Once again, the catches rise and reach the maximum of above 28 thousand tonnes in 1975 with slight reductions in 1976 and 1977. Although there is a sharp decline in the catches during 1970-72, the overall increase in percentage in the triennial averages is above 150%.

Statewise production of prawns

Among the maritime states of the west coast of India, Maharashtra and Kerala account for the major portion of the catches (Fig. 4) of this region as well as the entire coastline of India. Silas Ed. (1977) gives the contribution of Maharashtra and Kerala to the total marine landings as 47.5% and 30.7% respectively.

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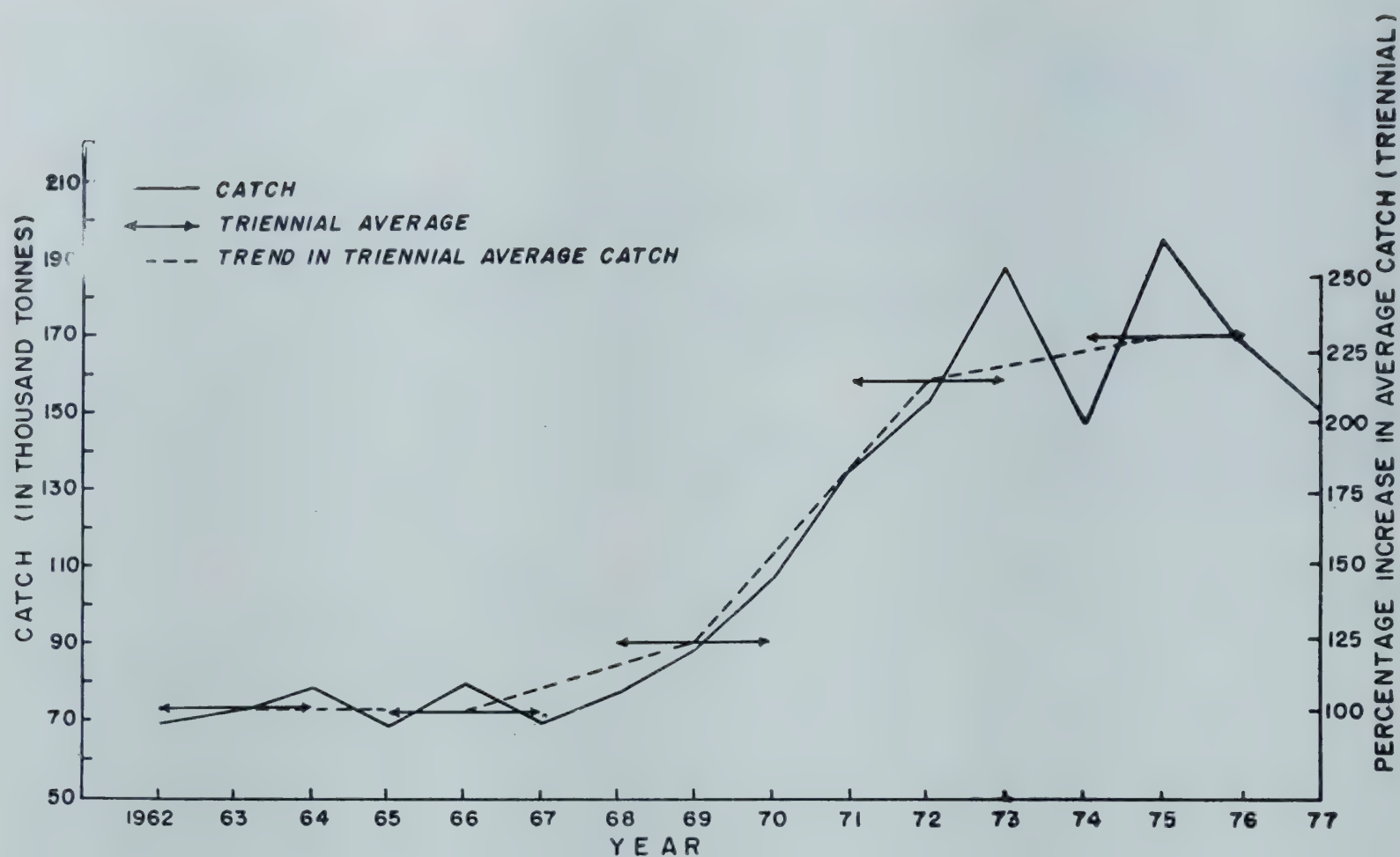


Fig. 1

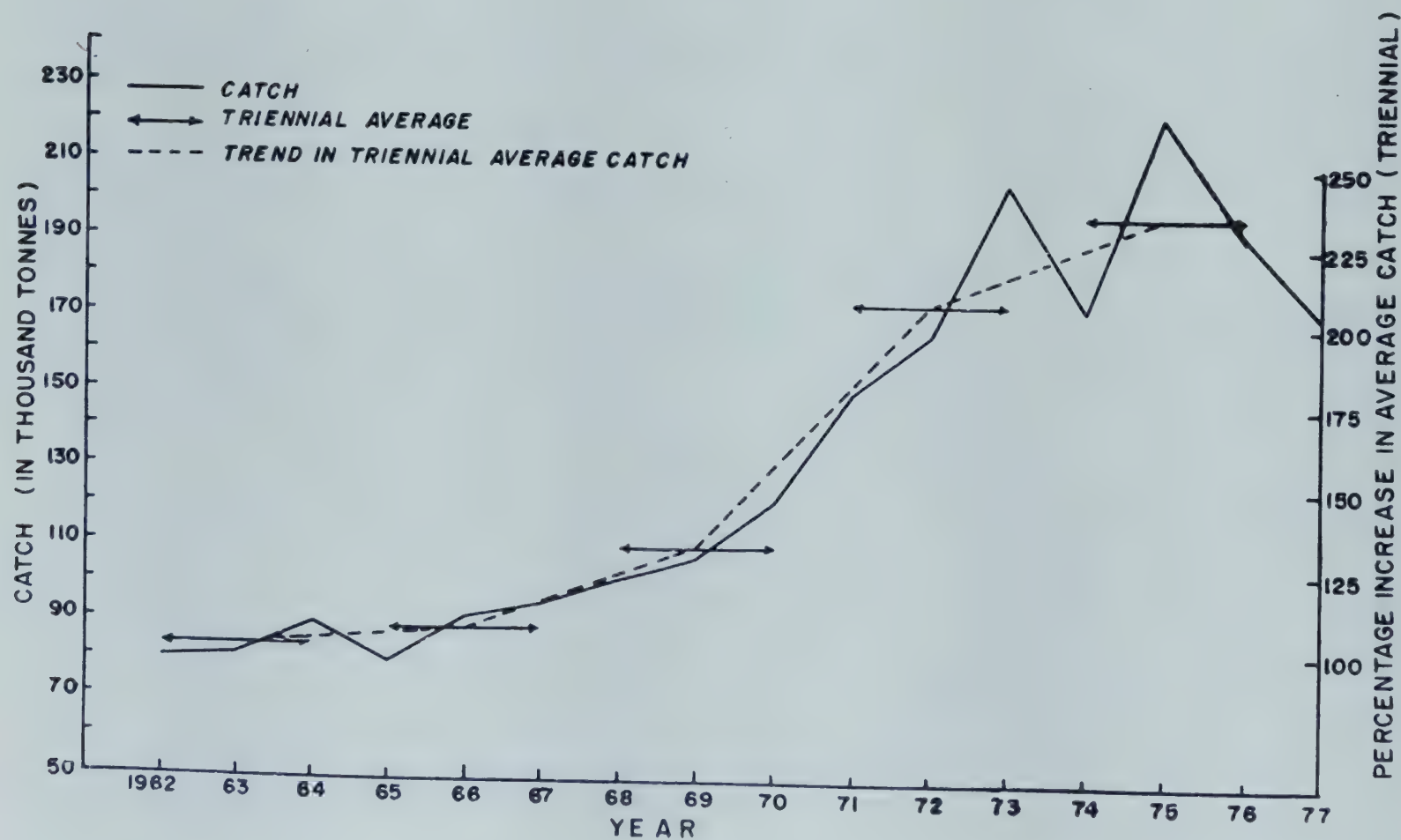


Fig. 2

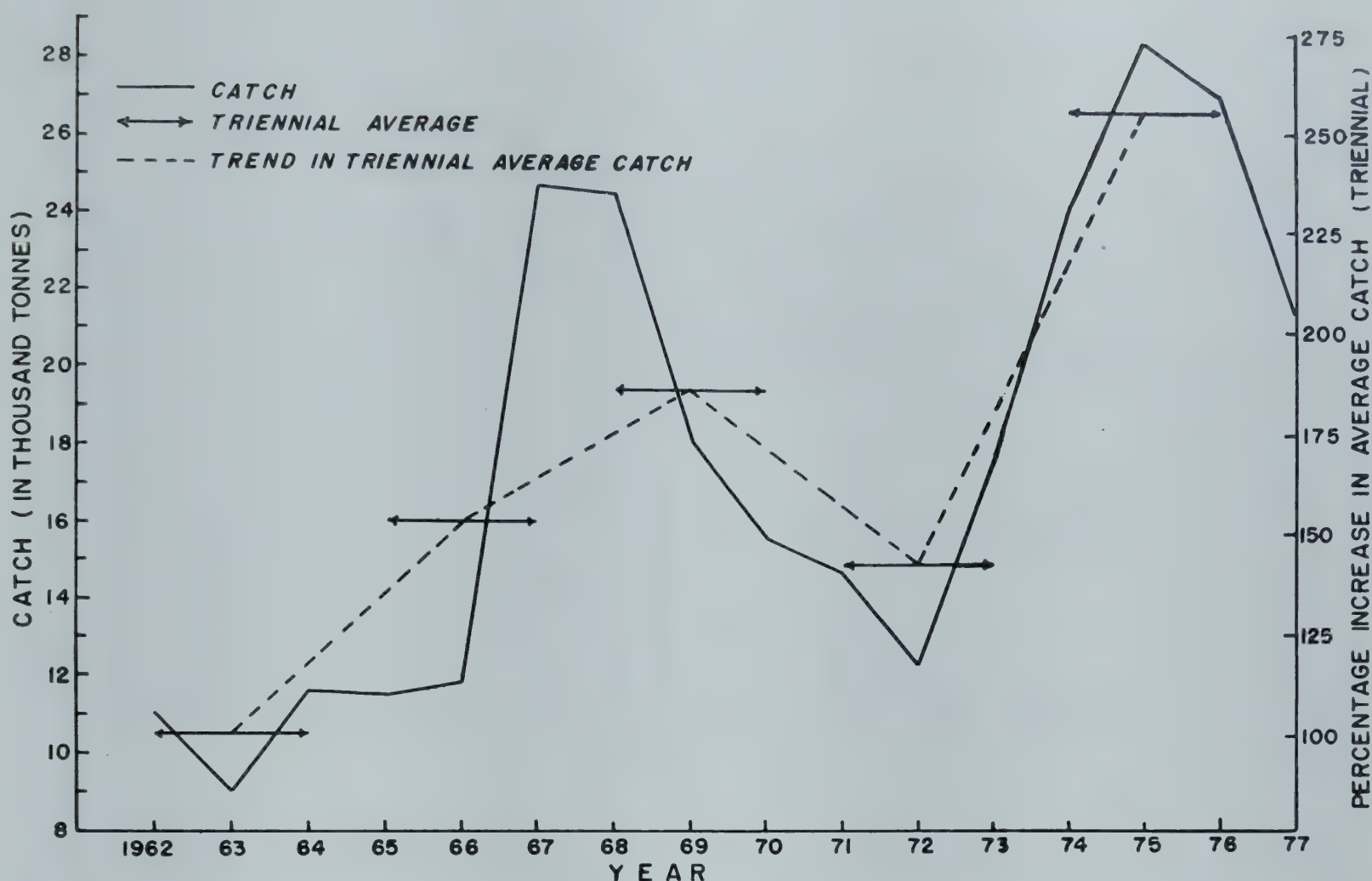


Fig. 3

While the non-penaeid prawns contribute to most of the landings in Maharashtra, the catches are exclusively contributed by penaeid prawns along Kerala coast. Along the Gujarat coast also, the catches are partly contributed by non-penaeid prawns. One important feature which emerges from a study of the prawn landings of these states along the west coast is that in the northern states of Goa, Maharashtra and Gujarat, the catches show an increasing trend and invariably in all the three states the maximum landings are seen in 1976. On the contrary, in the southern states of Kerala and Karnataka, 1973 and 1974 respectively show maximum catches and thereafter the catches decline. In both the states, 1976 registers comparatively very low catches, with slight improvement in 1977.

Along the east coast, Andhra Pradesh and Tamil Nadu contribute to the major portion of the landings. In both of these states, significant progress is seen in the annual catches, which increased considerably from that of the earlier years and reached figures above 8 thousand tonnes in the last two or three years. While nonpenaeid prawns contributed very little is the fishery in Tamil Nadu fairly good representation of these prawns is seen in the catches of Andhra Pradesh. In West Bengal and Orissa, the catches were quite high, above 10 thousand tonnes in 1968. Thereafter, they declined considerably and reached the lowest in 1972. In the later years, a slight improvement is noticed. The landings from Pondicherry nearing 1000 tonnes in 1962 progressively dwindled and is quite negligible in the later years. (Fig. 5).

DISCUSSION

An examination of the data on the total effort put in the exploited marine fishery, both mechanised and non-mechanised, given by Silas *et al* (1976) would reveal that the effort steadily increased through the years. The trend in the prawn landings also shows a steady increase side by side with the increase in effort till 1973. Thereafter, yearly fluctuations are noticed, the catches declining in 1974, going up in 1975 and again decreasing in 1976 (Fig. 1) in spite of the fact that the effort was increasing. This is a situation which has to be watched carefully with reference to conservation and proper management of the resource. The data of the prawn landings of 1977 shows a further decline indicating that at least in some areas, methods of conservation of the resources have to be taken up seriously.

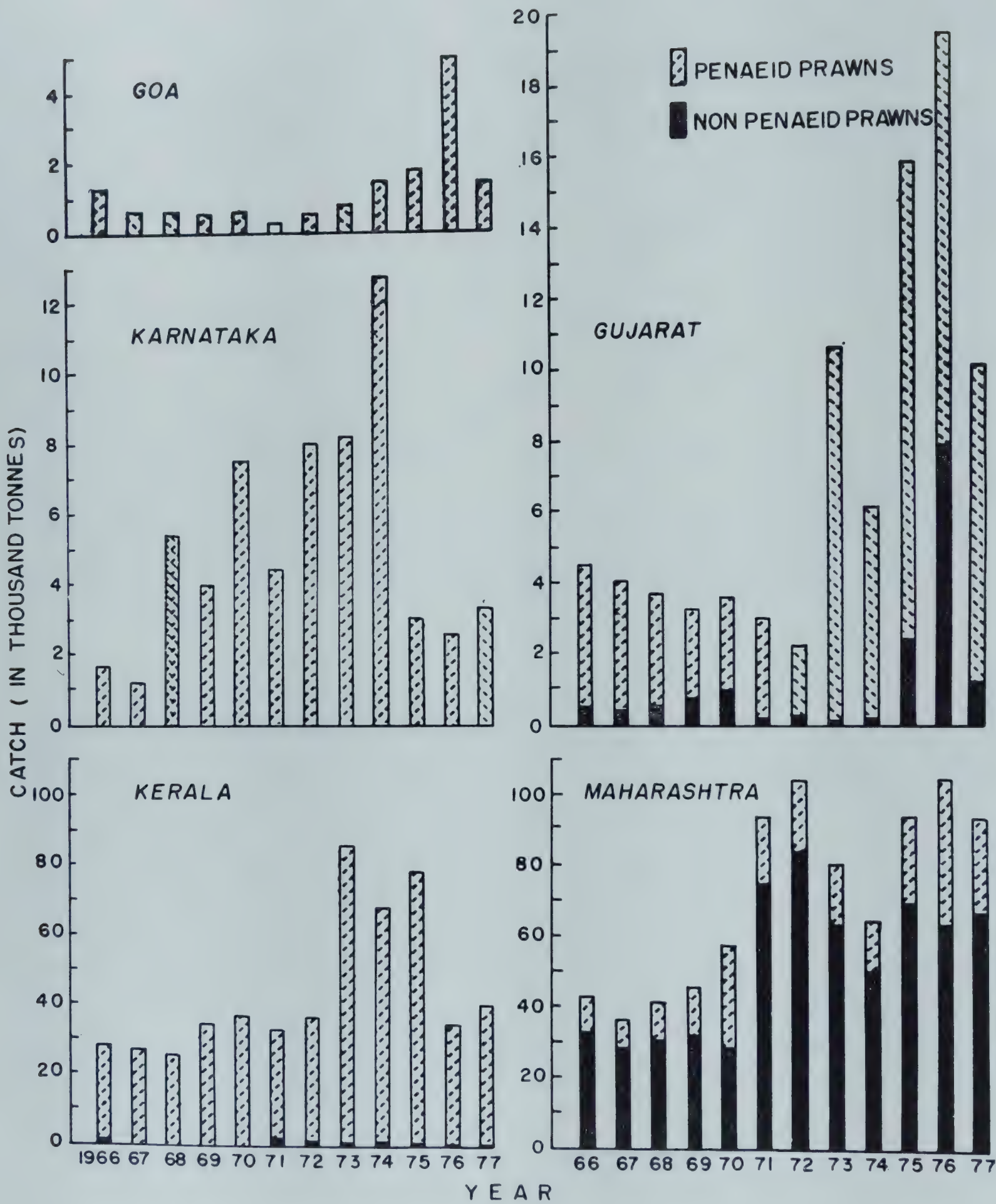


Fig. 4

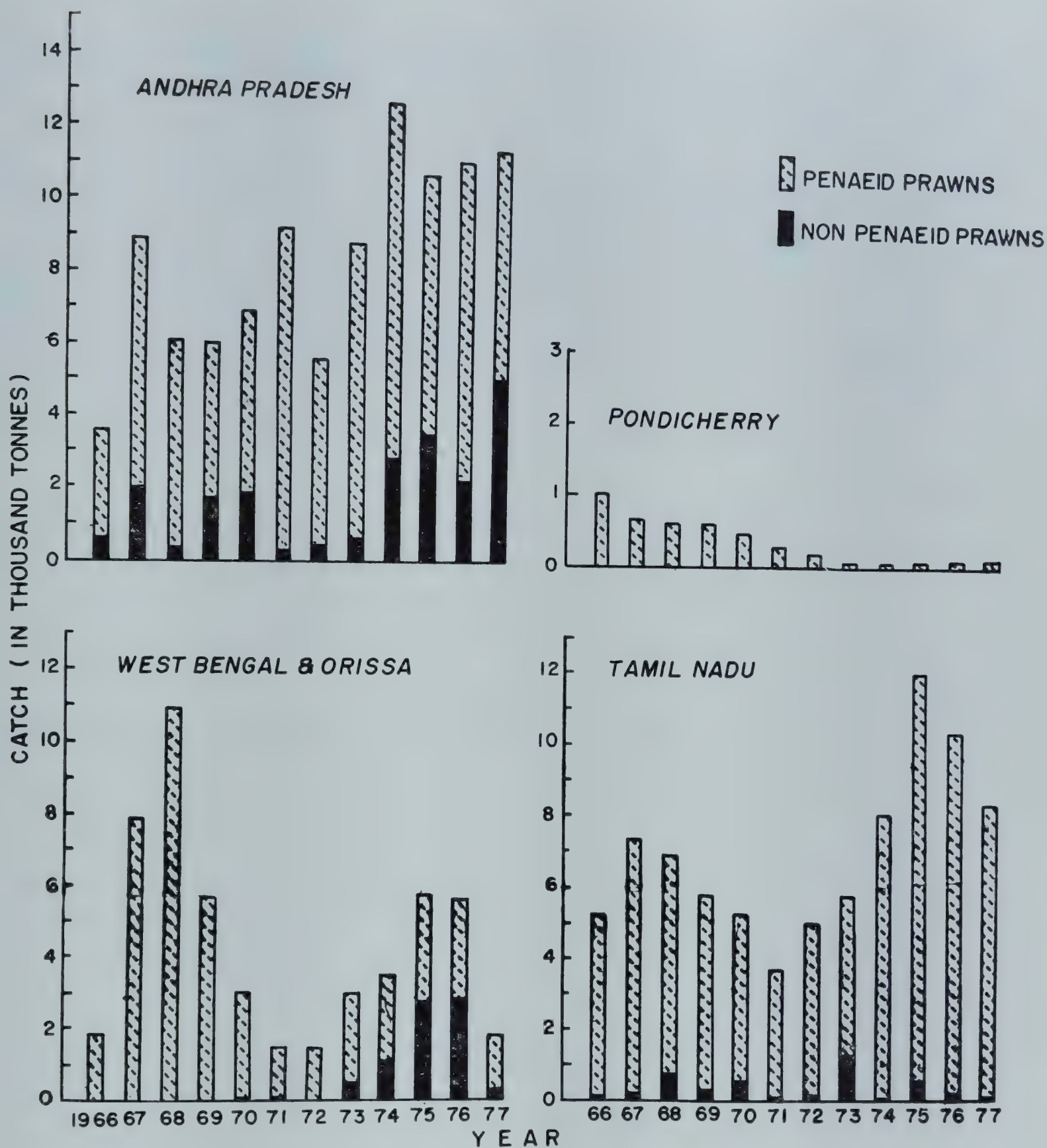


Fig. 5

As has been mentioned earlier, the trend in the total prawn landings is set by the pattern of the catches along the west coast. Hence, the same trend in landings in relation to the effort as above is depicted along the west coast also. Data on the

fishing effort (Silas *et al* 1976) shows that the maximum effort is in Kerala coast. An examination of the catches of this state (Fig. 4) shows that while the effort is increasing there is regular decline of the catches from the highest figures reached in 1973.

In 1976 and 1977 the catches are especially poor. Karnataka also shows a similar trend. Therefore, in these states, particular attention has to be given concerning conservatory measures of the resources, Saxena (1972) Qasim (1972) and

others (SEA, 1972) expressed concern about overfishing of prawns along Kerala coast as early as 1972. But since then, although the landings reached the highest in 1973, they dwindled in 1976 to lower than that of 1972. This would clearly indicate that conservatory measures to a certain extent are necessary in this area. Kurien and Sebastian (1976) discussed this problem. According to George *et al* (1977) 'the coastal penaeid shrimp stock is reaching a level of stabilisation and any further expansion of efforts for this resource in these areas is fraught with the danger of over-exploitation.'

It is encouraging to note that the Marine Products Export Development Authority, Cochin is conscious of the situation and has taken some concrete action for conservation of the fishery by arranging a meeting of the experts and specialists in order to determine their views in the matter. It is understood that there was a concurrence of opinion about the necessity for immediate conservatory measures in Kerala area. Some remedial measures like undertaking a massive campaign to educate the public on the need for conservation of juveniles of prawns in the backwaters, banning of export of prawns of 500 count up, strict prohibition of unauthorised operation of stake nets and chinese dip nets, mesh size regulation of nets operated in the backwaters etc. have been recommended. There is no doubt that if these measures are strictly implemented, it would go a long way in the conservation of these valuable resources.

List of figures.

- Fig. 1. Trend in marine prawn landings - India (1962-1977).
- Fig. 2. Trend in marine prawn landings - West coast of India 1962-1977).
- Fig. 3. Trend in marine prawn landings - East Coast of India (1962-1977).
- Fig. 4. Prawn landings along the west coast of India during the years (1962-1977).
- Fig. 5. Prawn landings along the east coast of India during the years (1962-77).

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Mr. S. Gopalan, Chairman, MPEDA, addressing the participants at the opening session.

THE FIRST NATIONAL SYMPOSIUM ON SHRIMP FARMING

The first National Symposium on Shrimp Farming organised by the Marine Products Export Development Authority in association with the Central Institute of Fisheries Education, Bombay, Central Marine Fisheries Research Institute, Cochin and the Central Inland Fisheries Research Institute, Calcutta was held at Bombay from 16-18th August 1978. The venue of the Symposium was the Central Institute of Fisheries Education, Bombay.

In his presidential address at the opening session of the symposium, Shri S. Gopalan, IAS, the Chairman of the Marine Products Export Development Authority, said that a good lot of useful work had already been done by the Scientists in the various Research Institutes in the country. He stressed the need for collecting and collating all the available information and know-how on the subject and said that it was with this object in view that the Marine Products Export Develop-

ment Authority took the initiative in organising the symposium. He also broadly touched upon the commercial viability of shrimp farming and its vast scope in different parts of the country, as well as on its significance in export promotion, in generating employment for rural population and in the upliftment of the weaker sections of the society.

Dr. M. S. Swaminathan, Director General of the ICAR who was to preside over the inaugural function was unable to do so due to other pressing engagements. His inaugural address was read by Shri P. R. S. Tambi.

Welcoming the participants Dr. T. A. Mammen, Director of the MPEDA stressed the special significance of the presence of a large number of shrimp farmers both present and prospective and representatives from the sea food processing and export industry and said that their presence was very encouraging

as they were the people to ultimately translate the technology into productive action. Dr. S. N. Dwivedi, Director, CIFE, Bombay proposed vote of thanks.

Altogether, over 100 persons including a large number of Scientists from Research Institutes, Fisheries Administrators from Maritime States, shrimp farmers both present and prospective and representatives of the seafood processing and export industry from different parts of the country participated in the symposium. Eminent specialists who participated in the symposium, included Shri K. H. Alikunhi retired Director of CIFE, and retired Project Manager of the FAO/UNDP, Brackish water Aquaculture Centre, Jepara, Indonesia, Dr. E. G. Silas, Director, CMFRI, Dr. V. G. Jhingran, Director, CIFRI, Calcutta, Dr. G. N. Dwivedi, Director, CIFE, Bombay, Shri S. N. Mitra, retired Fisheries Development Advisor to the Govt. of India and Shri K. Chi-

dambaram, retired Director of MPEDA.

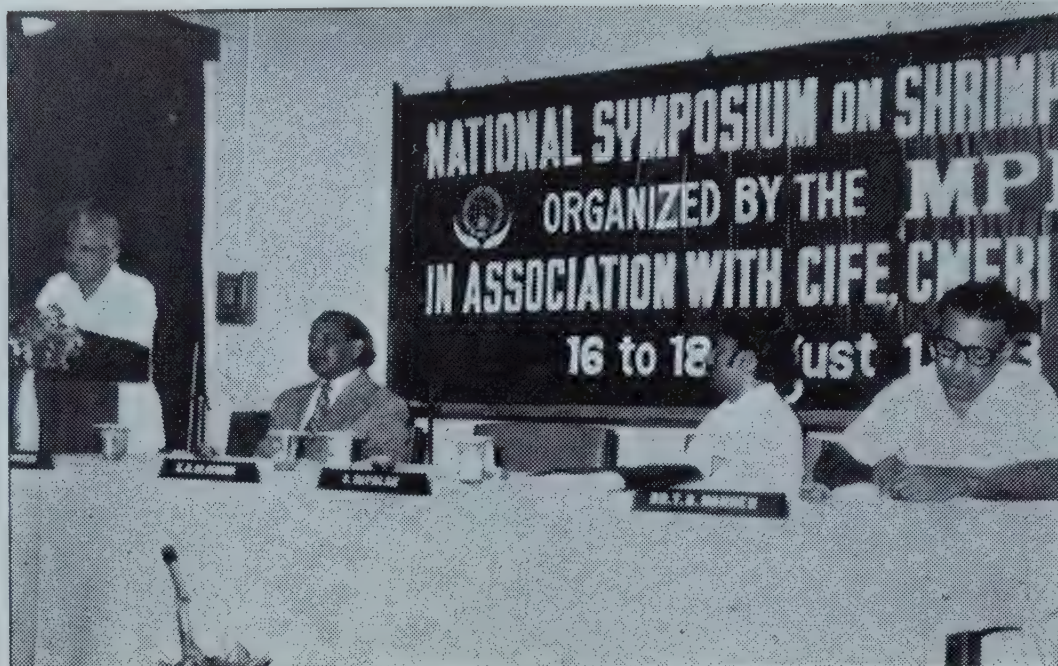
In the course of the three day programme, 42 papers were presented at 4 Technical Sessions dealing with:

1. Shrimp Fry Resources
2. Construction and main tenance of shrimp farms
3. Shrimp culture and its economics
4. Strategy for commercial shrimp farming.

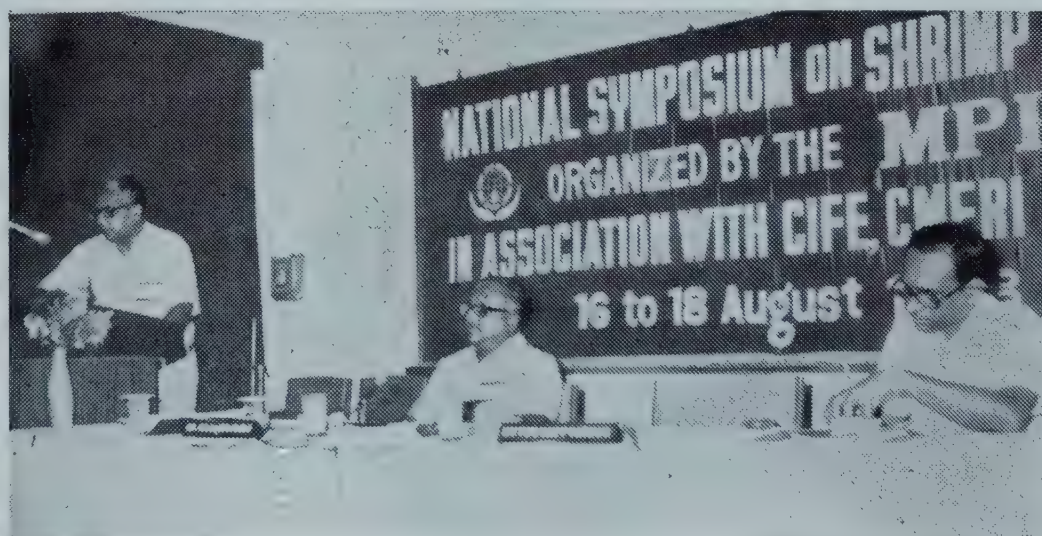
The deliberations at the symposium were extremely useful.

Some of the more important recommendations were:

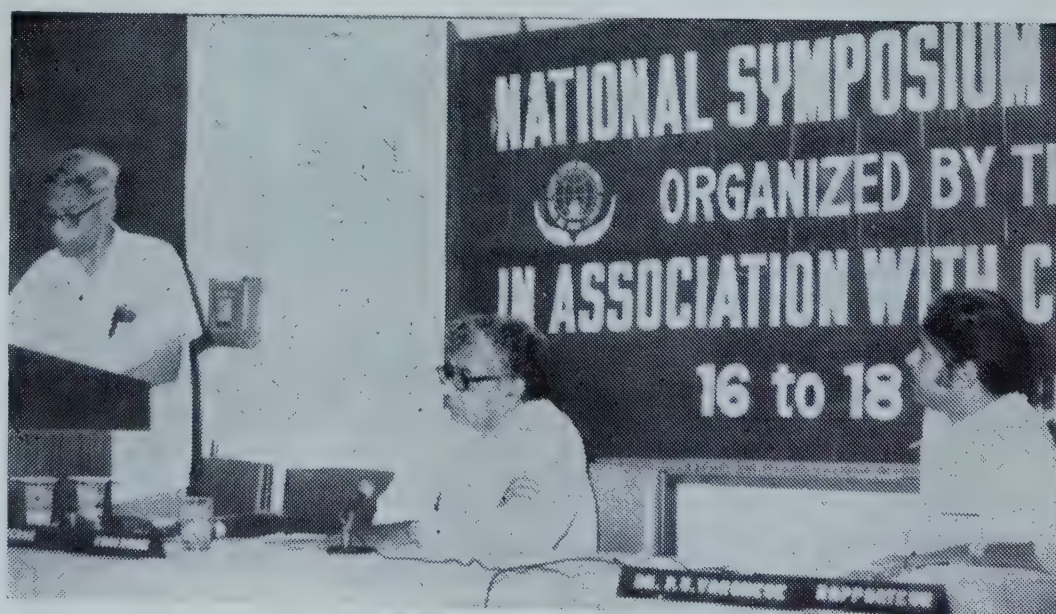
1. There is need for formulation of a national policy for aquaculture to promote shrimp farming on a systematic basis. This policy should comprehensively spell out the strategy for search, utilization of natural resources like fresh and brackishwater areas, arrangements for provision of finance etc.
2. Immediate survey of the land available for coastal aquaculture and identification of the areas suitable for shrimp farming, needs to be undertaken.
3. There should be a co-ordinated programme for the survey of the existing prawn seed resources of the country and the standardisation and quantification of the sampling technique to be followed in survey.
4. There is urgent need for the establishment of prawn hatcheries.



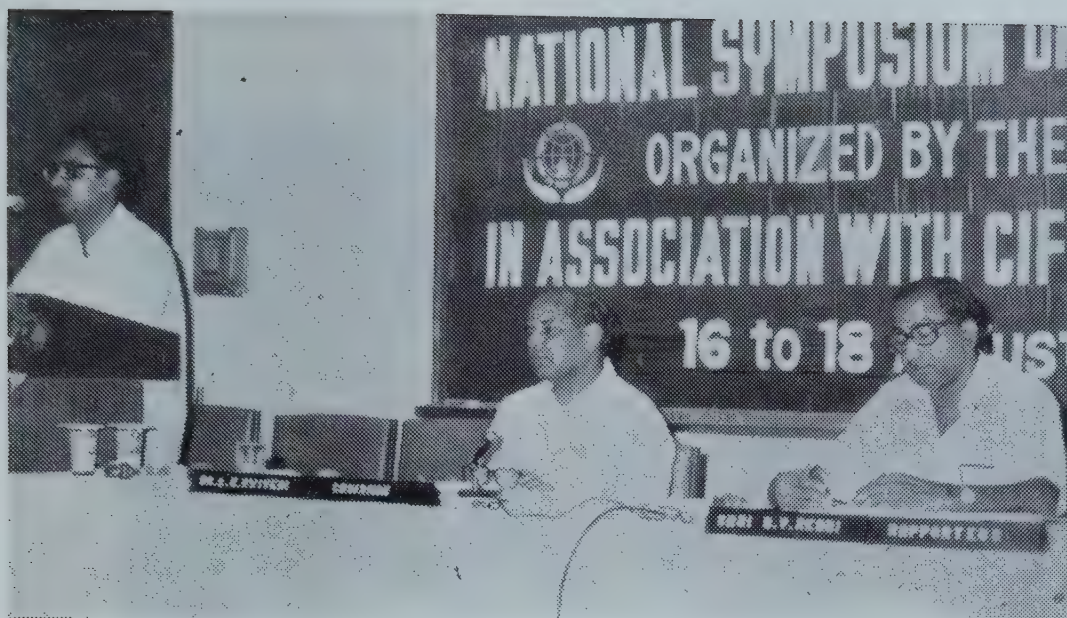
Mr. K. H. Alikunhi delivering the key-note address.



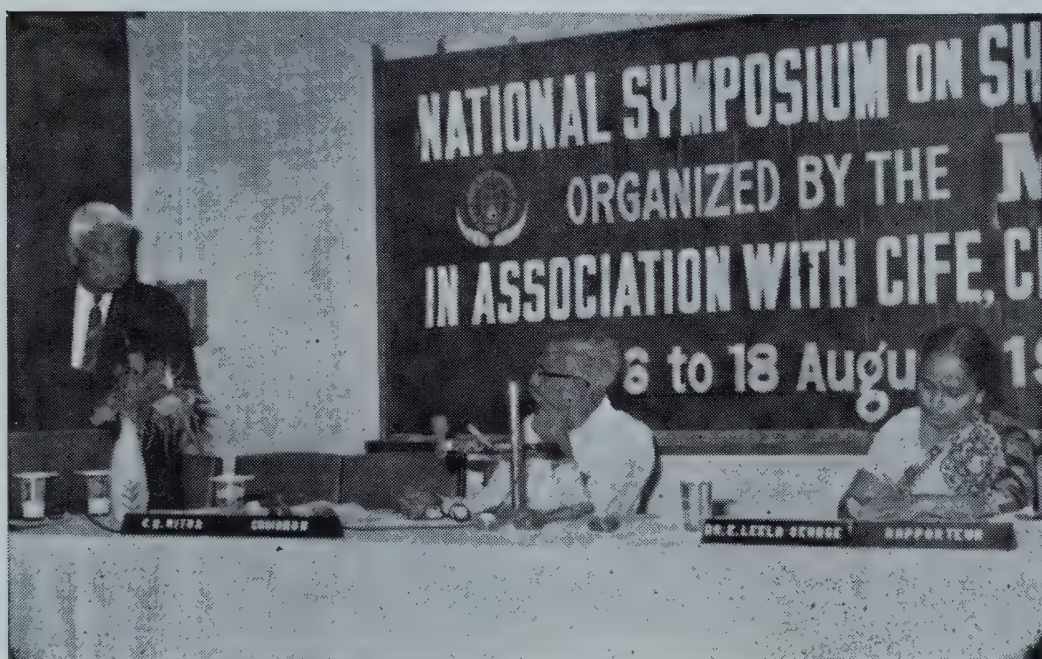
Dr. E. G. Silas, Director, CMFRI, chairing Technical Session I.



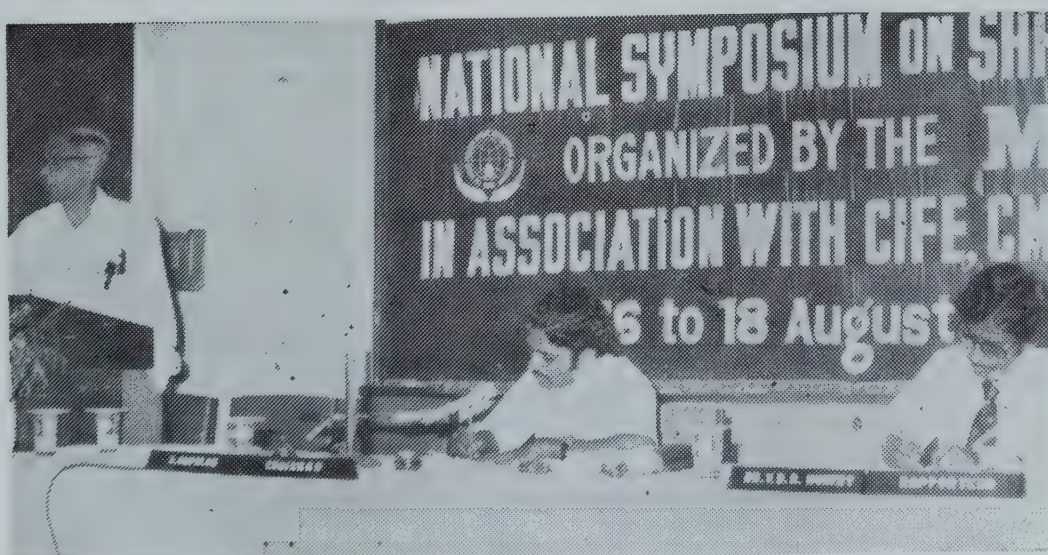
Dr. V. G. Jhingran, Director, CIFRI, chairing Technical Session II.



Dr. S. N. Dwivedi, Director, CIFE, chairing Technical Session III.



Mr. G. N. Mitra, formerly Fisheries Development Advisor to the Government of India, chairing Technical Session IV.



Mr. S. Gopalan, Chairman, MPEDA, chairing the Concluding Session.

cheries involving low cost technology in all the maritime states of the country.

5. MPEDA should equip itself to provide top level consultancy service in all aspects of commercial shrimp farming to State Governments and to the entrepreneurs.
6. There is an urgent need for developing and standardising economically viable methods for transportation of prawn seed.
7. Low cost technology for shrimp farm construction to suit the needs of Indian rural conditions should be developed.
8. Ready made designs for construction of aquaculture farms for different regions of our country may be made available for small, medium and large scale farms.
9. Demonstration farms and vigorous extension services should be organised for transferring the technology of shrimp farming on a systematic basis to those interested.
10. Comprehensive studies on the economics of shrimp culture in ponds, paddy fields, saltpans etc. should be undertaken and publicised for the benefit of those interested in shrimp farming.
11. Extension work should also be adequately organised to educate fishermen and fish farmers on conservation of shrimp resources.
12. The State Government should initiate action for amending the restrictive provisions of land Ceiling/Land Utilisation Acts with a view to encouraging shrimp farming.
13. The national symposium on shrimp farming may be organised in future, once in 2 years.

It is proposed to bring out in printed form, the papers presented at the symposium and the conclusions and recommendations shortly.

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INDIA.

SIAL FAIR

1978

Salon International Del' Alimentation, popularly known as SIAL Fair is one of the most important international Food Fairs. The Fair is regularly organised as a biennial event at Paris. The Sial Fair 78 was held at Palais Sud Ports de Versailles, Paris, from 13 to 18 November 1978.

This is the second year in succession that the Marine Products Export Development Authority (MPEDA) of India organised direct participation in the Sial International Food Exhibition. The Authority through the Commercial Wing of the Indian Embassy, Paris, had made elaborate arrangements for effective participation in the Sial 78. Mr. K. V. Kochu Govind, Regional Deputy Director of MPEDA, Madras who represented the Authority was also the Director of the India pavilion. A part of the pavilion was also made use of by the Cashew Export Promotion Council for displaying their exhibits.

The MPEDA had made necessary arrangements for storage and display of representative samples of Indian marine products in frozen, canned and dried forms. Adequate quantities of samples of Indian marine products were airfreighted from India specifically for display and sampling at the MPEDA stand in the Sial Fair.



Sial Fair 1978 was inaugurated by Mr. Remy Barre, Prime Minister of France on 13th November. The French Prime Minister who visited the MPEDA stand was duly received and presented with a souvenir.

The Authority had mailed from India special invitation cards to all the major seafood importers in Western Europe, particularly in France, requesting to visit the display of the wide range of marine products in the India pavilion at the Sial Fair. Special publicity literature in French and English were also brought out for distribution to Trade visitors.

There was tremendous enthusiasm of people who visited the MPEDA stand in the India pavilion. On a modest estimate about a lakh of people visited our pavilion. A large number of prospective buyers from major seafood importing countries

visited our pavilion and evinced keen interest in several items displayed therein. The visitors hailed not only from France, but also from other countries like Great Britain, West Germany, Holland, Spain, Sweden etc. The large number of trade enquiries received from buyers was duly circulated among seafood exporters in India for follow-up action.

Some of the exporters from India who attended the Fair were provided all necessary facilities effective negotiation of business. Mr. R.K. Rai, First Secretary (Commercial) and Mr. T. K. Gopalan, Attache (Commercial), Embassy of India, Paris, actively involved themselves for the successful organisation of our participation in the Sial Fair 78. The European Economic Community extended financial assistance to India for organising direct participation in the Fair.

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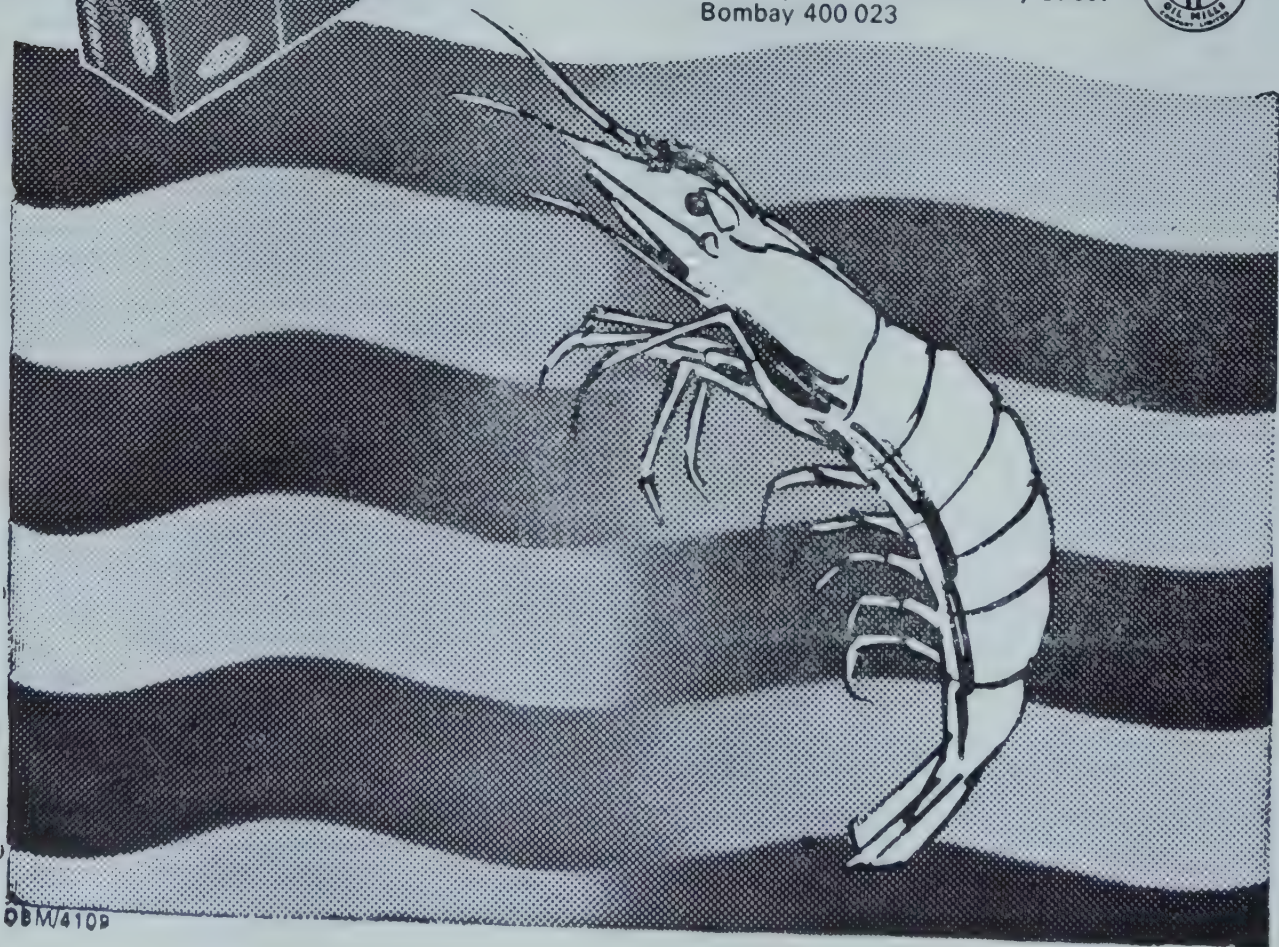


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NEWS & NOTES

TRADE PROMOTION OFFICE OF MPEDA OPENED AT TOKYO

The Marine Products Export Development Authority has opened a Trade Promotion Office at Tokyo. Mr. R. R. Singh till recently Under Secretary to the Government of India in the Ministry of Commerce, New Delhi, has assumed office as Resident Director. The address of the office is as under:-

The Trade Promotion Office,
MPEDA, Third floor,
No. 1, Marutaka Building,
6-16-12, Ginza, Chuo-kuku,
Tokyo
Tel. No. 363-0435.

Japan is the largest market for Indian frozen shrimp. During 1977-78 India's exports of shrimp to Japan were of the order of Rs.1,090 million. Next to Iron ore, frozen shrimp is the largest export commodity from India to Japan.

MPEDA TO PROVIDE INSULATED FISH BOXES AT SUBSIDISED COST

The Marine Products Export Development Authority is proposing to popularise small insulated fish boxes of the capacity of 56 kg. These are suitable for storage and transport of fish and shrimp in ice. The particular design now offered for insulated boxes has been evolved after a series of field trials of different models. The Authority has decided to supply these boxes at half the cost. The Authority is implementing the scheme in a bid to improve the quality of raw material received in processing plants.

One of the easiest and most widely used methods for keeping fish and prawns in a fresh condition is keeping them in ice. It is known that the rates of spoilage of fish at 5.5°C is twice as fast as at 0°C and at 12°C is four times as fast as at 0°C.

MODERN FISH CANNING PLANT INAUGURATED AT COCHIN

A modern fish canning plant has been set up by the Integrated Fisheries Project at Cochin under the FAO aid programme. Chairman, MPEDA, inaugurated the plant on 2nd November, 1978.

The Rs. 17 lakh FAO assisted fish canning plant is the first of its kind in the country and will be used for demonstration and product development. The machinery for the plant was received under the UNDP programme through the Pelagic Fisheries Project from various countries like West Germany, the U. K., Sweden, Norway, U. S. A, Italy and Japan. For the first time in India, aluminium cans, imported under the FAO aid programme, will be used at this plant in the place of conventional tin containers. The plant will initially can 2000 cans per day, which would be gradually increased to 5000 cans.

FISH IS BRAIN FOOD

Choline, a chemical found naturally in foods such as fish, egg yolks and wheat has been reported to increase learning abilities as much as 25 per cent. Tests conducted by the National Institute of Mental Health (USA) found that in controlled tests, college students were able to memorize word sequences faster after taking choline.

BOOST FOR FISH FARMING IN JAPAN

In response to the threat posed by 200-mile restrictions imposed by many governments, the Japanese Ministry of Fishery, Agriculture and Forestry has embarked upon a US \$ 3 million project to set up more fish hatcheries.

The new 200 mile zone already imposed has affected Japan's total catches adversely and has given rise to many problems for the country's food supply. Until 1970 a nett exporter of fish, Japan became a nett importer when its catch levelled off at 10 million tons, while its demand continued to increase.

Japan has opened up 10 new fish hatcheries breeding several different species of fish, with seven more to come by 1980. The project also plans to increase the capacity of salmon incubation facilities from 1.4 billion eggs to 2 billion eggs. Efforts are also being made not only to increase the efficiency of fish processing to avoid unnecessary wastage of food material, but also to stabilise the fish supply by promoting the consumption of lower grade fish such as sardine and krill and developing new fisheries off the Argentinian and South African coasts. The country has also started several overseas joint ventures to catch and process fish. It has already invested some US \$ 80 million in 28 such ventures in the United States.

JAPANESE FIRM EVOLVES NEW METHOD FOR FISH MEAL PRODUCTION

A Japanese firm, Oriental Engineering Co. Ltd., has developed a method of converting fish processing plant waste (sludge) into fish meal. The sludge consists of 50 per cent water, 30 per cent protein, 15 per cent oil and 5 per cent ash. The material is heated to 80°C under low pressure and a recovery rate of about 50 per cent has been quoted. At one processing complex 15 tons of sludge is being each day.



Mr. M. Yusuf Patel, Managing Partner, Patel Grinding Industries, Bombay (right), receiving the State Export Award from Mr. S. A. Solanke, Minister for Fisheries, Government of Maharashtra, for outstanding export performance from Maharashtra State during 1976-77.

PFP UNDERTAKES AERIAL SURVEY

The Pelagic Fishery Project, Cochin, undertook an aerial survey from Tuticorin to Ratnagiri mainly for assessing the fishing effort distribution and level of localisation of the fishing industry, with a view to correlating it with the distribution of the resources located by the acoustic surveys of the project.

The survey was carried out from 27th to 30th September 1978 using an eight-seater aircraft. The aircraft spent about 15 hours of actual flying time for the survey. Dr. G. P. Bazigos, FAO consultant planned this survey and led the team of 6 scientists. Very valuable synoptic information has been collected on fishing effort concentration in different zones of the Pro-

ject area. The data are being analysed by the PFP to make a special report.

RBI Relaxes restrictions on trade with Pakistan

The Reserve Bank of India has relaxed its restrictions against opening and advising of letters of credit by banks in India in regard to trade between Pakistan and India. Accordingly, henceforth, any authorised dealer in foreign exchange in India may open letters of credit in a convertible currency against imports from Pakistan to India or advise letters of credit opened in a convertible currency against exports from India, subject to the normal Exchange Control regulations being observed.

Indo-Bulgaria Shipping pact ratified

India and Bulgaria have exchanged instruments of ratification of a shipping agreement between the two countries signed in November 1976. With this, the agreement came into effect from August 4, 1978.

India has already entered into similar agreements with Poland, Egypt, West Germany, Pakistan and the USSR.

Ninth World Fishing Exhibition to be held in Copenhagen

Industrial and Trade Fairs International Limited, the organisers of the World Fishing Exhibition in Halifax, Canada, last year, have announced that the next event will be held in the Bella Centre, Copenhagen, from 26 June to 1 July, 1979.

The exhibition, the ninth in this traditional biennial series, will benefit from the superb demonstration and display facilities of the Bella Centre, one of Europe's most modern and sophisticated exhibition centres.

Detailed information on the exhibition could be had on request from Mr. John Legate, Industrial and Trade Fairs International Ltd., Radcliffe House, Blenheim Court, SOLIHULL, West Midlands, B 91

2 BG, England. Telephone: 021 705 6707 Telex:337073.

SCI Introduces fast container service from India to Australia

The Shipping Corporation of India Ltd., have decided to introduce CONTAINER SERVICE in their INDIA/AUSTRALIA SERVICE. The new monthly container service commenced with the loading of M.v. VISHVA MOHINI from Bombay on the 7th September and from Cochin on the 12th September 1978.

With this fast service the transit time from Cochin to Australia will be reduced considerably. The transit time from Cochin to main ports in Australia will be as under:

15 days to FREMANTLE

19 days to ADELAIDE

23 days to MELBOURNE

28 days to SYDNEY

It is expected that the above service will prove to be of advantage to Australian buyers.

Pre-shipment Inspection for imports into Zambia

Imports into Zambia are now subject to pre-shipment inspection of quantity and quality and price-comparison. An inspection certificate must be obtained from the approved inspection company in the country of origin before goods are shipped.

Exempt from this requirement are all imports from countries bordering Zambia as well as short list of basic and essential imports regardless of origin. The General Superintendence Company Limited, Geneva, Switzerland and its associates have been appointed to carry out inspections. Representative offices are located in all major ports and industrial areas.

Cochin Fisheries Harbour Inaugurated

The Cochin Fisheries Harbour was inaugurated by Mr. Chand Ram, Union Minister of Transport and Shipping at Cochin on 8th September, 1978. This is the third Fishing Harbour of the country, the other two being Vizag and Tuticorin. The Rs. 3.5 crores project is having a lay by jetty, slip way, 1200 ft. long wharf and a spacious auction hall. The harbour has facilities for accommodating about 800 mechanised boats and 70 fishing trawlers.

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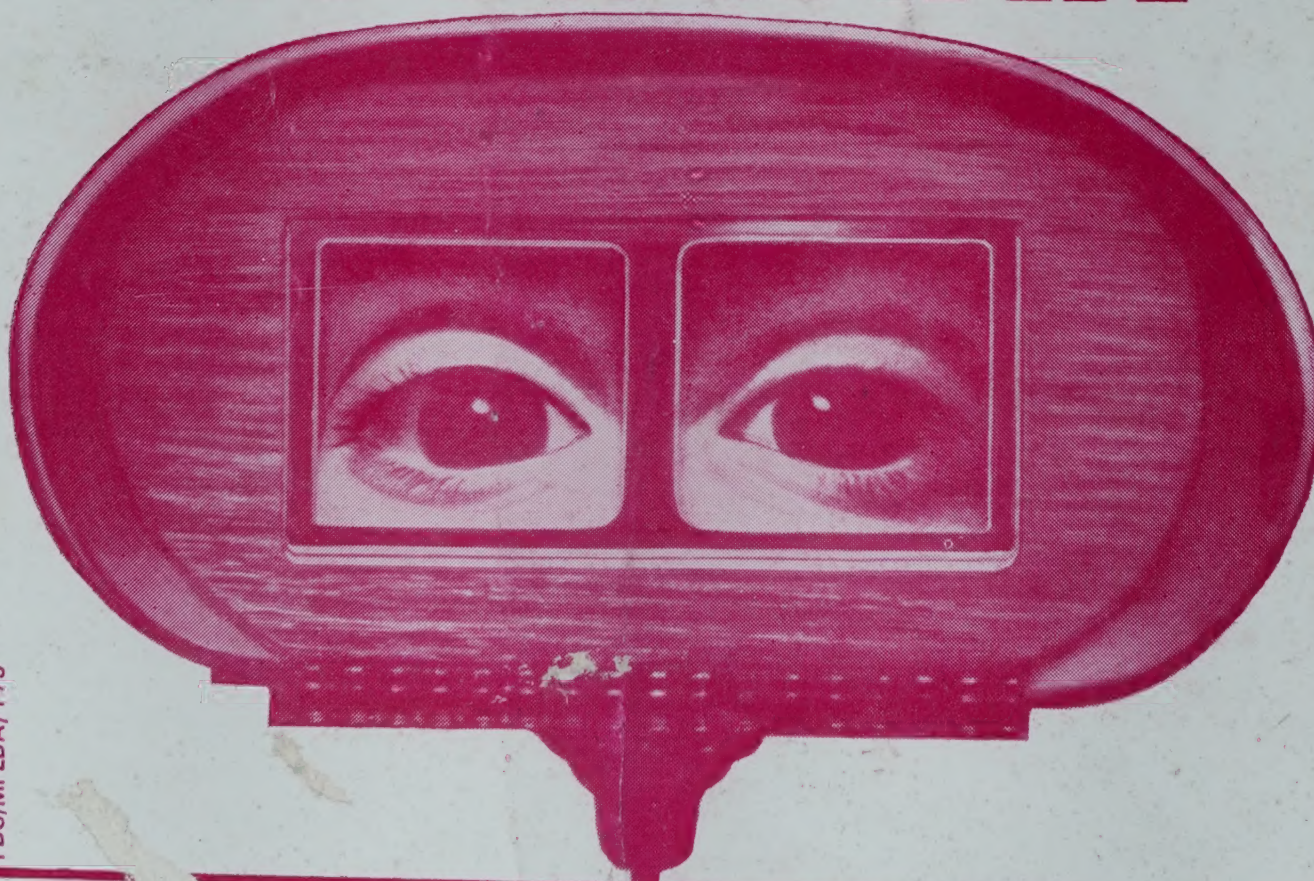
When it comes to controlling the quality of our seafoods, we are fanatically alert.

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not a wink



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